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NEW COMPUTER EXPRESS

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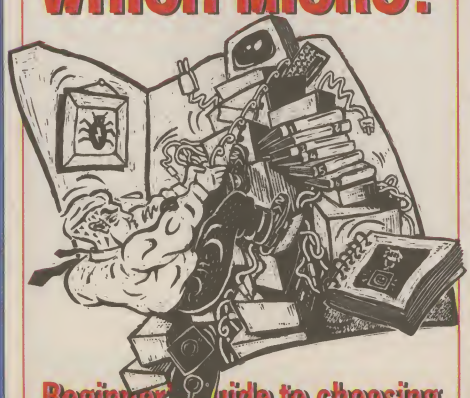

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MULTIMEDIA MAGIC

Amazing new systems that link CDs, videos, text and graphics page 8

Use Express vouchers and SAVE OVER £10 see page 17

Computer game may spawn TV show

Software producer Audiogenic has come up with the novel idea of trying to turn a computer game into a television show.

Emlyn Hughes Arcade Quiz Game – due out before Christmas – is being considered by TV companies as the basis for a TV show hosted by the man himself. The game itself uses an approach not yet tapped by television and broadcasting mandarins are looking at the software house's ideas.

"It's completely different from anything before," offered an enthusiastic

• Hughes: trivial

spokeswoman. "We're looking at television possibilities and we may be turning it into a pub arcade game as well." She stressed though that negotiations for both deals are at a very tentative stage.The game itself is not restricted to football or sports.

Meanwhile, ST and Amiga versions of the hugely successful *Emlyn Hughes International Soccer* are due out in less than a month. Audiogenic claims the game has been bought by some 70,000 eight-bit soccer fans in the past year. A PC version is under development and should be out just after Christmas.■

Company challenges hackers to break in

Top brass at the gigantic Nippon Telegraph and Telephone company in Tokyo seem to be pretty impressed with their own data security system.

In fact they're so pleased with it that hackers are being dared to break in. Anyone who succeeds within the next two years will win one million yen (at present exchange rates about £4,500).

The company handles much of Japan's telecommunications data and is the equivalent to British Telecom. UK hackers will probably realise that telephone bills will break the £4,000 mark before they even get close.■

Atari's ST replacements arrive

THE NEXT GENERATION

Atari has unveiled the successors to the massively popular ST range.

As first predicted in *Express* (Issue 33) the firm has launched an upgraded version of the ST called the STE (E for enhanced). This is a replacement for its 1040 machine, and should arrive early next year at £499. A 512K version will also be making its way here "in due course".

But more interest was aroused by a new high-power machine which was revealed along with the STE at the Atari Show in Dusseldorf. The machine, named the TT, uses Motorola's superfast 68030 processor with 2Mb of memory and comes with a high-resolution colour monitor and a 30Mb hard drive. It will be compatible with existing ST software. This will cost just under £2,000 when it arrives in the UK – comparable systems such as the Macintosh IICX or a souped-up Amiga 2000 would cost over a thousand pounds more.

Also being planned is the TT/X which, like the TT, runs the ST-compatible TOS 030, but also handles Unix. The TT/X will include 4Mb of RAM and a huge 60Mb hard drive. Cost is likely to be in the region of £3,500 to £4,000.

Both these machines are being viewed as low cost business micros which will challenge not only high-end PC clones but also the Apple Mac.

Atari has taken this opportunity to resolve some of the problems of the original ST, and both the TT and the STE have dramatically improved graphics and sound facilities.

• The new machines: the upgraded STE (left) and Atari's new flagship, the TT (right)

The STE boasts an built-in blitter which will speed up graphics considerably; in the past users have had to fit blitters as an optional extra. There's also a larger palette of colours – up from 512 to 4,096. Unfortunately no changes have been made to the number of colours you can display on screen at one time.

New hardware has also provided vertical and horizontal scrolling. Programmers have previously had to implement all kinds of trickery in order to wrench vertical scrolling out of the ST. The new hardware will allow the central processor to get on with other jobs, thus speeding the machine up considerably.

The poor quality of the ST's sound chip has been one of its major faults – it is no better than that in the Spectrum. Now it will come with a stereo eight-bit pulse code modulator chip which can play real sampled sounds like its rival the Amiga.

It will also come with two extra joystick ports at the back. These are non standard 15 pin connectors which will need an adapter to use standard sticks. However each will take two joysticks so users can play with six joysticks at once. The ports will also take a light gun or pen.

The TT has all the ports of the STE as well as an SCSI ('scuzzy') and ASCII port for connecting extra, high capacity storage systems, or for hooking into a network.

Physically the STE looks exactly like the 1040 while the TT has an Mega ST keyboard attached to a uniquely styled plinth.

Atari says that 30 software houses have already pledged to begin writing programs which will take advantage of the STE's new-found talents. But buyers will have to wait until the new year until they can pick up any of these machines and possibly until next autumn until they can buy software which exploits the hardware.

A spokesman offered: "These machines, as well as our RISC based ST, are the future for Atari. This is just a process of improving and upgrading our machines."■

• Full preview on pages 15 and 16.

ST tunes in to TV

Atari ST owners can now access all the latest in news, sports, gossip and reviews by tapping into teletext.

A new adapter has been produced by Microtext which already manufactures such gadgets for mainstream eight-bit machines and the Amiga. The advantage of computer interfacing with teletext is the ability to download pages to disk. Arty users can even save illustrations for later use with paint packages. There's also a print out option.

Unfortunately the BBC recently stopped thair free software downloading service, but the rest of Ceefax is still available.

The whole unit costs £129 and can be obtained by calling 0705 595694.■

• Microtext's teletext adapter lets the ST page the Oracle, 4tel, Ceefax...

● 50 per cent more micros bought in Europe

COMPUTER BOOM

Europeans are buying more and more computers – the personal computer market grew by 52 per cent during 1988 according to leading market research firm Dataquest. It's predicting another increase of 38 per cent this year.

• Home use is increasing faster than business use – that sector grew by 58 per cent.

• Norway has the highest penetration of computers amongst white collar workers – 23.8 per cent. That's mainly due to tax concessions for computer buyers. Micro mad Holland is catching up though. that has a 21 per cent penetration which is expected to rise to an incredible 60.7 per cent in 1992.

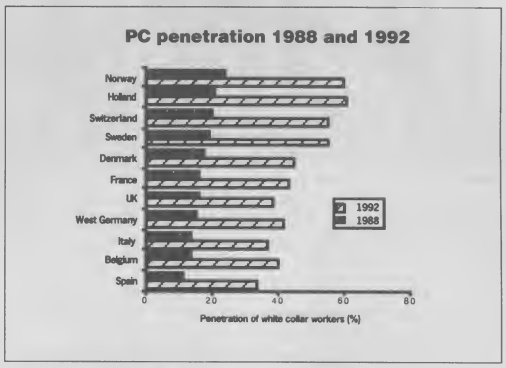
• Britain has a penetration of 15.9 per cent. Lower than France but higher than West Germany. However, it's predicted that British penetration will only be 38.1 per cent in 1992 – lower than most of the major Western European nations.

• West Germany proved itself to be Europe's biggest country in computing terms. Last year 1,031,200 personal computers were sold there. France has also come good with 794,000 whilst Britain has lagged with 778,000.

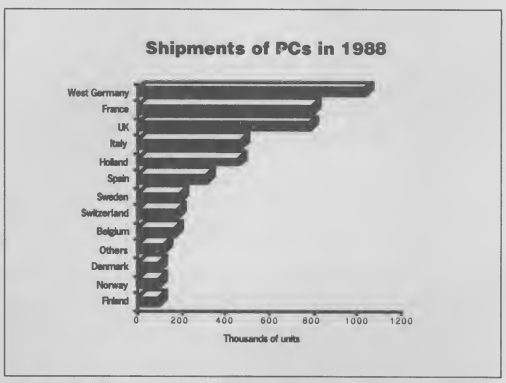
• The 8088/86 machines are still the biggest but 286 is catching up. Last year 1,729,000 8088/86 were bought compared to 1,634,000 286s. Fast 386s are making an impact. 296,000 of them were bought compared to 49,000 in 1987. This year will see an enormous increase on that. Sub $2,000 non IBM compatible machines such as the Amiga and ST sold 606,000 units.

• US giant IBM still has the biggest share of sales in Europe with 16.1 per cent (down from 19 per cent). Britain's Amstrad was second with 11 per cent in 1987 – that's slipped to 6.8 per cent behind Olivetti (7.6 per cent), Atari (8.2 per cent) and Commodore (8.4 per cent). Apple has 4.6 per cent.

• The total value of the European personal computer market in 1988 was a massive $15.1 billion (£9 billion).■



• Predictions of home micro ownership in Europe



• How the major European countries line up in terms of computers bought last year

• Jones: On top

Indy topples Robocop

Record breaker *Robocop* has finally been toppled as the biggest game in the country.

US Gold's big name title *Indiana Jones and the Last Crusade* has taken over at the top of the charts from Ocean's winner which sat at the top for a record 36 weeks.■

Amstrad's PC200 all-in-one offer

As predicted in *Express* (Issue 42) Amstrad has decided to bundle a printer with its PC200 machine.

The MS-DOS machine which was launched last September has still to make an impact. Amstrad hopes this all-in -one deal will appeal to first time buyers.

In effect the firm has taken the DMP 3160 printer and "blackened it" to fit in with the PC200's look. It's also been badged with the Sinclair name. Buyers will pay an extra £100 on top of the price of each PC200 for the newly named SP200 printer. A mono monitor configuration will cost £499.■

Coders hit 16-bit budget

Well known Code Masters budget games such as *Treasure Island Dizzy* will soon be appearing on the ST and Amiga.

In the past the firm has kept away from 16-bit machines for most of its budget titles as it claimed development costs aren't worth it. However, it now says that budget games will be released on all five major formats.■

Whack a Mac

Ever had the urge to maim and destroy your computer when it starts playing up? Those wacky Californians have come up with a solution to keep that stomach ulcer at bay.

It's a five inch high soft plastic Macintosh stuffed with squidgy bits which you can happily throw all over the place when computing becomes too much. Smack-a-Mac costs $9.95. Order direct from Computer Accessories That Make Fun on 0101 619 279 1919.■

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COMMENT

Is the STE's biggest threat the ST?

Atari's new machines address two clear markets. The TT is a low-cost business machine, at under two grand a colour 68030 based machine. The Apple Mac, Amiga 2000 and DOS compatibles will have a serious rival on their hands.

But for most of us the STE – essentially a souped-up 1040ST – is the more interesting of the new pair. It looks little different on the outside, apart from the 'E' appended awkardly to the badge; and it still uses the 68000 Motorola processor.

But Atari have recognised that many buyers have been wooed by the superior sound and graphics of the Amiga and have tried hard to regain the advantage. After all, the ST is still a very good buy, but with so many good deals being offered on the Amiga and PCs tumbling in price all the time, perhaps its days are numbered.

The extras that clearly take after the Amiga – stereo sound, four- to six-joystick capability, genlock support and extra scrolling facilities from hardware – should give programmers scope for inspiration. But with over a million STs already sold, it's going to be tempting for most of them to write straight ST games as usual, and address the larger market. Perhaps the very success of the low-priced ST will be the biggest stumbling block to that of its successor.

However, the new machine will – when it appears – certainly inject new life into the eternal ST vs. Amiga debate. And that can only be good for sales of both machines.

NEW COMPUTER EXPRESS

EDITOR Rob Ainsley
NEWS EDITOR Colin Campbell
FEATURES EDITOR Andy Storer
REVIEWS EDITOR Rik Haynes
TECHNICAL EDITOR Jerry Glenwright
ART EDITOR Angela Neal
DEPUTY ART EDITOR Harriet Athay
PRODUCTION EDITOR Stuart Anderton
ADVERTISEMENT MANAGER Mark Salmon
AD EXECUTIVES Sarah King, David Lilley, Quentin Mowbray, Adrian Taylor
AD TYPESETTING Terry Turner
PUBLISHER Greg Ingham

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GAMES TAKE TO THE AIR

Electronics group Plessey last week launched its long awaited in-flight entertainment centre for air passengers. Talks are being held with six leading airlines.

The system will provide bored travellers with access to a wide range of entertainment and communications facilities including top games ranging from shoot-'em-ups for youngsters to high brow affairs.

The system consists of a monitor fitted into the back of the chair in front of the passenger along with a keyboard and a headset.

Not only will passengers have access to a database of games, there's also a choice of movies, an audio tape library and the ability to order duty-free gifts from your seat – they'll then be presented to passengers on arrival. There's also a fax machine or telephone option which allows travellers to communicate with the ground. A one minute telephone call would cost about seven pounds.

Other games likely to be used are poker and fruit machine simulators with users playing with real money. Payment is through a normal credit card which slips into the back of the system.

Australian firm Aristocrat is working on software for the system. All the games will be single user affairs.

Five years ago Virgin Atlantic worked on a similar project but scrapped it because of logistical problems. Plessey appears to have overcome these.

The firm expects airlines to be fitting the systems as a matter of course by 1991.■

• In-flight gaming a reality

E–mail split ends in tears

Yet another infantile row has broken out between electronic mail giants Microlink and Telecom Gold as their well publicised parting of ways looms.

In an official press release Microlink has accused Gold of issuing "junk mail" through its E-mail system urging Microlink members to leave that board and join Telecom Gold. As of October 1st Telecom Gold will no longer host the Microlink board – that has jumped ship to new concern Istel Inet.

Gold is clearly miffed that it will lose thousands of members. Although Microlink is the hobbyist section of the Gold network its members can tap into Gold's services.

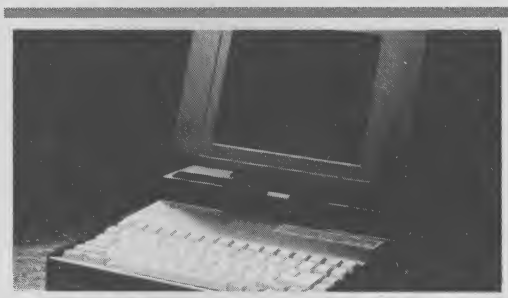
Microlink has responded to Gold's alleged activities by contacting its solicitors and complaining to OFTEL (the telecommunications watchdog).

"These are Big Brother tactics in a most reprehensible form," said Microlink chairman Derek Meakin. "BT is using its privileged position to contact people who are on our confidential list of subscribers. All of them have contracted directly with us and not BT."

Telecom Gold quickly pointed out that it did not send E-mail messages per se but telex messages to private numbers which are attached to Microlink – not Microlink numbers. "They've got it all wrong," offered a spokesperson. "They are trying to give the impression that Telecom Gold is sending out thousands of E-mail junk messages. In fact it's just a few thousand simple telex messages."

Meakin later admitted this is the case but denied that any attempts had been made to mislead. "They're still using E-mail to send the telexes," he said.

A bemused OFTEL spokesman commented: "There's nothing we can do about it. It's up to Microlink's solicitors."■



• Tosh beater? Flowline's portable

Taking on Tosh

Fledgling London PC manufacturer Flowline Computers reckons it's got a laptop to beat the likes of Toshiba and Compaq.

The top end model boasts a power specification including a 40 Mb hard disk, 1Mb of RAM and 1Mb expansion memory. The 286 LT3500 also has a 12MHz clock speed and an EGA gas plasma display.

But at £2100 it's a tad expensive. The firm's Barry Walsh explained: "With a technical specification like that you have to expect those sort of prices. but when you compare it with, say Toshiba, then it's extremely competitive.

Flowline has a cheaper model, the LT 3200, which sports 640K of RAM expandable to 2.6Mb. That costs £1750. More on 01 207 6565.■

Share chance

Visitors to the forthcoming PC Show are to be given the chance to dabble in the world of shareware.

Folio Shareware is giving away programs to anyone passing its stand. With shareware anyone taking a shareware program is welcome to try it out for free. However, if they like it they are then supposed to send cash to the supplier.

The main flaw in this arrangement is that it relies on honesty – curiously, shareware works in the US (although doesn't do so well here). A special starter pack will be on offer for £2 which includes a dozen full PC programs, utilities and games.■

Olivetti droops

Italian computer giant Olivetti's profits dipped by 40 per cent for the first half of this year to L102.6bn (£46.6m).

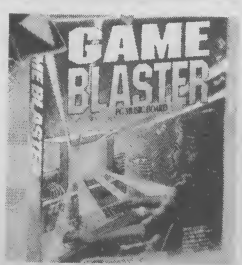
The company which manufactures the £399 PC1 is blaming the poor result on the turbulence of the PC market as well as an internal restructuring.■

Sounds unlikely

Heard about the PC which has better sound than the Amiga? It's no joke.

American firm Brown–Wagh has developed a system which can bring PC sounds to life through your stereo system. The Games Blaster costs a hefty £119 but it includes built in 2.5 watt amplifier with 12 voice polyphonic music board. It also comes with a free game – *Slipheed* from Sierra Online.

Leading US software publishers such as Electronic Arts, Cinemaware and Activision are currently writing games which will take advantage of the boars. More from UK distributor DLL on 0983 864674.



• Sound judgement for PC musos?

• Pick a card

Card spells the end of carrying cash

Members of the Darlington Country club are using the first Bull EEPROM card in an experiment to see how people get on without cash.

The Erasable Electrically Programmable Read Only Memory smart card can be used to enter the club, buy sports gear and meals as well as to store medical data and fitness assessment records.

The program – sponsored by Bull and Barclays Bank – has been going on for the last few months and, apparently, has gone down extremely well. More than 2,000 members have been using the cards.

"Whole families are using them as if they have always existed," said project manager Robin Townend. "The younger and older generations enjoy using them even more than the 30 year olds who probably use computers every day at work."■

Send in the clones

Do you own an Amstrad PC? Or maybe you're hooked to the CPC? Perhaps it's the PCW which is the focus of your computing activities?

Either way you'll probably be interested in a special mini feature planned for the forthcoming Computer Shopper Show. It's called the Wonderful World of Amstrad and it'll include all the latest from the infamous manufacturer as well as goodies from peripheral companies and software houses.

The show's organiser is expecting a veritable flood of Amstradians to pour through the doors of Alexander Palace (November 24th to 26th) and is promising a circus atmosphere with clowns, stiltwalkers and even a baby elephant turning up. It is understood that Mr Alan Sugar won't be acting as ring master.■

Companies share flats

IBM and Toshiba have set up a 50–50 company in order to manufacture large LCD screens.

These are generally considered to be the future of visual display since they are thin, cheap, use hardly any power and look good. Zenith has already begun working on such a product and Phillips launched one earlier this yea to considerable acclaim.

Toshiba and IBM Japan have formed Display Technologies to make the screens for the two firm's own products – 10 inch flat monitors should emerge from the new factory in Japan in April 1991.■

Computer students make the grade

More than 80,000 youngsters sat the new computer studies GCSE exam last term with 37.5 per cent of the reaching grade C or over.

Nearly seven per cent of the students gained a grade A while 9.4 per cent flopped with a grade G. Applicants were down from 1988 when 100,329 student sat the course. But the standard was higher this year with more youngsters wining higher grades.

Computer studies is still one of the lesser subjects at school with only German and Business Studies of the mainstream subjects attracting fewer applicants.■

● MicroProse's bold statement:

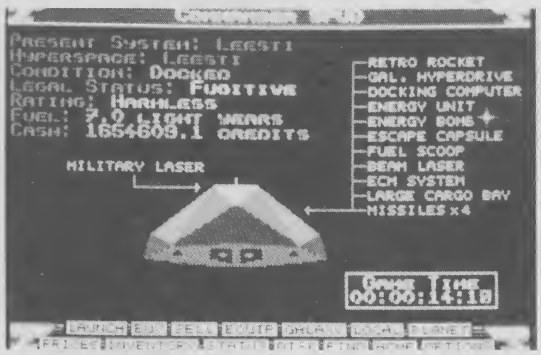
NEW GAME BEATS ELITE

MicroProse's top programmers in the UK have been given the task of writing the most comprehensive space game yet.

The young programmers have been told to top David Braben's six year old classic *Elite* as the number one in space strategy and trading games. MicroProse's founder Bill Stealey last week flew into the UK to make sure everything was running smoothly.

The game – as yet unnamed – should be out on 16-bit machines early next year. Designers are still trying to work out if the massive game can be fitted onto eight-bit machines.

MicroProse has been steering itself away from its old image as a military simulation company over the past few years. When it set up here three years ago the company's main products were submarine and fighter pilot simulations. Now it is seeking to become one of the world's leading forces in computer game publishing and has diverted resources in order to accomplish that aim.



•*Elite*: MicroProse aims to beat it

This is its most ambitious project in the home computer sector to date. "We really don't want to draw comparisons with *Elite* because this will be so much bigger and better," said the firm's Peter Jones. "It will be the ultimate space game. In fact it will be the game of the decade," he claimed. "We've been working on this for some time but it's such a big project that we've had to keep it all under wraps."

Despite its age *Elite* is still regarded as the best space strategy game. To date it has sold 600,000 copies.

Meanwhile, MicroProse UK's boss Stewart Bell has left the firm in a shock move. A triumvirate of key personnel including Jones will take over the company's affairs here although it is understood that more power will be transferred to its American headquarters.

MicroProse says that Bell left on good terms although his future plans are, as yet, unknown.■

Here they come again...

Yet another PC manufacturer is preparing itself for a full attack on the low end sector with high spec machines.

Hi–Grade plans to launch what is being touted as "the cheapest 386 machine" at a price busting tag £1,225. Also on the way is an ultra low cost 286 priced at £775. And there'll be a 20 Mb hard disk version costing £895.

Tech specs have yet to be announced although Hi–Grade is promising that potential buyers won't be disappointed. A spokesman said: "Nearly 90 per cent of each machine is manufactured in Japan. These machines are cheap but they're not horrible."

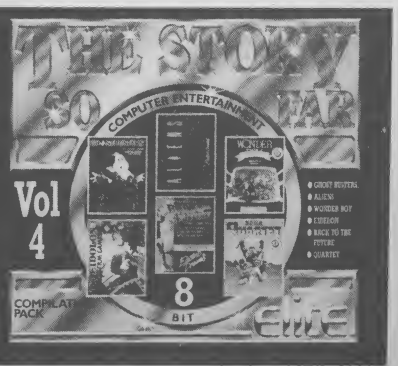
When asked if he were worried about stiff competition from such as Amstrad he said: "Anyone can compete with Amstrad, the trouble they're having".

Meanwhile, any buyers of Hi–Grade kit can pick up £775 worth of free software including Ashton-Tate's *Framework II*, Microsoft Windows and MS-DOS 4. More on 01 482 4042.■

Pack to the future

Eight-bit gamers hunting for a good all round package might be interested in Elite's latest compilation.

The Story So Far Volume Four includes six big name titles including the massive *Ghostbusters* and *Wonderboy*. Also included are *Quartet*, *The Eidelon*, *Back to the Future* and *Aliens*. The games are available for the Speccy, C64 and CPC.



• Right: Elite's compilation

APPLE SLASHES MACS

In a shock move Apple has slashed up to 25 per cent off the prices of its Macintosh Plus and SE machines.

For the first time buyers can pick up the Mac Plus for less than £1,000. That machine has been cut from £1,355 to £999. When it was launched in 1986 it retailed at over £3,000.

The Macintosh faster SE twin floppy has come down from £2,165 to £1,735, and the more useable hard disk versions have been similarly reduced.

Apple says these new prices are more in line with American levels where the machine is extremely popular.

Significantly, Apple is also using the words "personal user" for the first time. In the past the firm has acknowledged that its pricing is way out of reach of most home users .

Last week Apple's Frank O'Mahony told *Express*: "In the States about half our sales go to corporate users with the rest going to small businesses and home users. We expect to see small businesses picking it up here as well as a lot more personal users."

He added: "We've brought the prices down because we want to extend the Macintosh range. There are a lot of people who are extremely price sensitive and who will be considering the Mac for the first time." Apple is hoping to woo those people who might be considering an IBM compatible machine.

The Mac's universal popularity is mainly due to its ingeniously simple user interface. Most regard it as the simplest computer to get to grips with.

Meanwhile, Apple has fired a warning shot across the bows of those companies manufacturing Mac emulators for other machines. O'Mahony said: "We're looking at this closely and if anything infringes our copyrights then we'll take action. But the ones I've seen don't come close to the Mac. We'll start getting nervous if that happens."

• Right: the Mac into the home?

Oddball keyboard

The strange device on the left has taken the free floating mouse, flipped it upside down and plonked it on the keyboard.

PC owners looking for such an alternative are being promised home-grown British quality rather than any of that Far Eastern stuff. *(Less of the jingoism – Ed)* The Penny & Giles keyboard/trackerball combination costs £395. An RS232 version is also available. More on 0202 481751.■

Perfect spreadsheet?

WordPerfect has launched an upgrade to its popular PC spreadsheet *PlanPerfect*.

Version 5.0 offers multiple interfaces, several printing options and a a host of new ways to chart and present business figures. The firm reckons it has an average 20 times increase in calculation speed compared with the previous *PlanPerfect* version.

The price is £299 though upgraders can pick it up for £50. A networking version should arrive soon costing £399.■

Virgin's heading for trouble

On the right is, literally, the head of leading software interest Virgin/Mastertronic.

The sight of Nick Alexander's bonce separated from the rest of him might prompt gleeful cheers from heartless rivals in the games industry – but not for long. Extensive investigations by our news team have uncovered the facts behind this picture.

It would appear that in a frantic bid to win column inches Alexander had software person Brynn Gilmore FAKE his gruesome execution. In fact, the self confessed "most important person in the games industry" is alive and well.

All this just to publicise the home computer version of that splendid carve-'em-up coin-op *Shinobi* which will be arriving just before the PC Show.■

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SOFTWARE

Due to the ever expanding range of software for the Amiga, space does not allow us to mention every package available. Below is just a SMALL SAMPLE of our software prices. If the item you require is on the market, then we can supply it and at a competitive rate.

Battlehawks 1942	£18
Millenium 2.2	£18
Publishers Choice	£89
Superbase Personal 2	£72
Superbase Professional	£181

This is just a small example of the items we can supply. We provide full support with every purchase. Whatever your requirements we can 'Bundle' items together in any combination. Please phone for details on these, or anything you require.

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MULTIMEDIA MAC

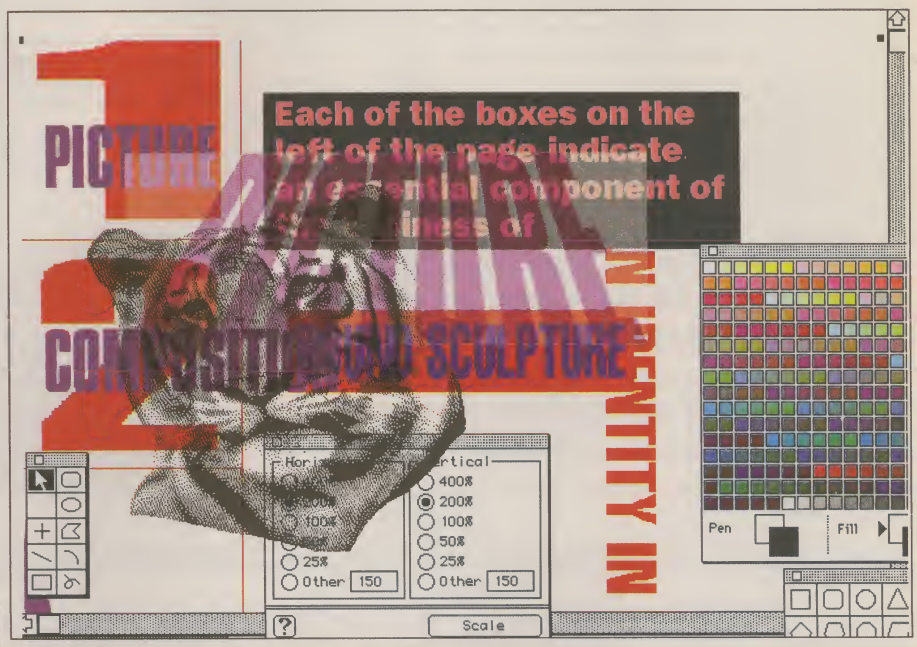
Always innovative, Apple's all set to conquer the new market of the nineties - multimedia. Andy Storer grabs a few frames of this fledgling technology...

Wherever there's innovation, Apple is never far behind. Indeed, it's usually responsible. Multimedia is perhaps the most singularly exciting development in recent computing and Apple's at the forefront of its future. It's a term used to denote applications that mix text, graphics, sound and moving video to transform presentation - it takes in desktop video and goes beyond.

It all started with *HyperCard* on the Mac in late '87 - a multi-purpose application with endless possibilities that set the style of software to come. *HyperCard* provided an even friendlier interface than the Mac desktop - a busy little 'home' card acting as the centre of operations for everything from appointment diaries to spreadsheets to animation. Icons and buttons battled it out for control over a bewildering variety of databases known as 'stacks'; each stack containing cards of information ranging from clip art and cartoons to page designs and phone books. You could build your own stacks and navigate between them by linking areas with clickable buttons - you could even load in all your favourite applications from within *HyperCard* and return back to base when you'd finished. The potential was enormous - bright, moving graphics could live side by side with dull, stolid business. Even cynics had to admit it represented something of a revolution.

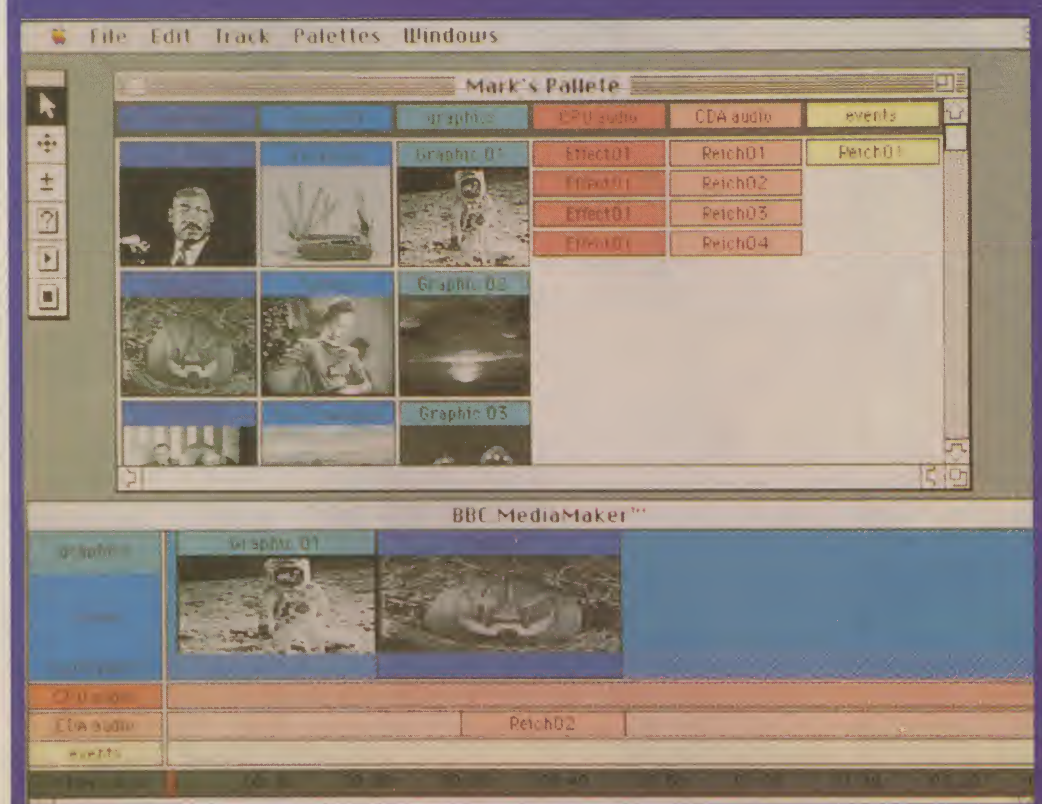
Cutting the hype

So why and how has the *HyperCard* front-end



(Right) • *Supercard* - a new contender in the *HyperCard* arena - adding colour and a 10 metre square screen size!

THE FIRST MULTIMEDIA



Several diverse developers have already begun exploring the potential of multimedia applications. Most prominent among them is the BBC with its *Mediamaker* package.

Mediamaker is a software application based on the *HyperCard* clone, *Supercard*, and developed by the BBC's Interactive TV Unit and Apple. It's described by its authors as a "word processor for multimedia" and is a visually-based editing system that can sequence still and moving pictures and synchronise them with sounds. Thus, material from videodisc, Video 8 and compact disc can be combined with Mac graphics packages to produce stand-alone sequences which can be 'printed' to videotape. To assemble a sequence, source materials are broken down into picture icons or 'picons' which can be played and edited to length. Picons are then dragged into the 'track' window below the main display which has separate channels for video and audio output. With a minimum of 4Mb of RAM it's possible to create and view sequences of up to 10 minutes duration. To accompany *Mediamaker*, the Beeb are also producing the Mediabank series of Video 8 tapes - collections of clip video culled from various broadcast programmes.

• "The BBC's *Mediamaker* is the first application to bring professional video editing to the desktop"

CHINES

fostered multimedia? The secret lies in its Hypertalk command language. Such is its simplicity that you can roam *HyperCard* all day without ever needing to use it. But behind the ease lies the expertise. Hypertalk is a powerful object-oriented language designed from the outset to be totally interactive. With its built-in routines and procedures it's not only possible for Hypertalk to activate other devices such as sound sources and video clips but call in other software to assist as and when needed.

Combine this flexibility with the emergence of the new CD ROM and video disc mass storage devices and it's perfectly feasible to have a desktop system able to merge with other forms of media. In theory, midi-music interfaces, scanners, digitizers and genlocks can all be used in conjunction and with ease, but to date developers have had to use their own custom interfaces. However, last month's Macworld Expo '89 in Boston, saw Apple stepping in to help matters by announcing its Apple Media Control Architecture.

Printing to video

The AMCA will provide a framework for all applications to access videodisc players, CD-audio players, videotape recorders and other media devices via a standard interface code. As such, it'll be possible to integrate video clips with CD audio sound, manipulate the two elements and 'print' the outcome to videotape. The nineties will see a predominance of video-based presentations because of videotape's low-cost read/write capabilities and wide availability. ●

MULTIMEDIA FOR YOU?

Is there any reason why multimedia should be confined to a Macintosh environment? The answer is a qualified no. Although machine architectures and I/O are sufficiently similar to support interfaces for the range of media devices in question, what's crucial is the operating environment on hand. Top priority must go to the amount of RAM you have on board plus the requisite masses of hard disk space. A 10 second video sequence can eat up 2Mb in no time at all. And then there's the question of control of all that diverse data through some flexible front-end. The Mac's always been streets ahead in terms of the way it provides a virtually idiot-proof environment. It's fast, reliable and, above all, ridiculously easy to run any number of the packages released for it. They all conform to the same menu operations. With the PC, ST and Amiga the situation is less straightforward. Although windowing environments exist for all three, software doesn't always run under them. In addition, icon control is less flexible and screen-handling, with the exception of the Amiga, less precise. But despite these inadequacies, there are plans on the horizon to bring multimedia to other 16-bit machines. After all it's development support that's the key here - at the end of the day, the chips in Macs, STs and Amigas are identical - all that's needed is the will to plot the way ahead.

● THE TOP MULTIMEDIA MICROS

1. ARCHIMEDES

Tecnation's Bit Bopper system can arguably claim to be the only real multimedia system to run on any home micro other than a Mac. It's two Archies, 600Mb erasable optical disc storage, custom video/audio digitisers and ultra-fast screen handling routines, make it an ideal configuration. Although it's been designed with entertainment in mind, there's no reason why it couldn't be used for more serious applications. What's more, versions for 16-bit machines are planned - even eight-bit outings are in the pipeline!

(Left) • The Bit Bopper in action - the only non-Mac multimedia system to date

2. AMIGA

American company Intuitive Technologies plans to release a *HyperCard* clone, *Ultracard*, later this year. Since the Amiga is well catered for in terms of digitsers, genlocks and sound handling, this will undoubtedly open up the field of multimedia applications for Amiga owners. The machine is already being used for desktop video and interactive training so the ground work has already been prepared. The Amiga 2000's open architecture and high RAM capacity makes it the ideal contender.

(Right) • The Amiga's already set up for low-level multimedia applications

3. ST

Because of its built in MIDI interface the ST's always been well supported in the sound department, with professional sequencing and sampling packages just queueing up for your readies. In the video field it has a lot of catching up to do, despite a few genlocks here and there, although Rombo's real time digitser stands as a pointer for things to come. For multimedia you'd really need a Mega ST2 or 4 though to get things going. So there are no applications on the market at present although the ST's *Cyber* range of software is already being used for desktop video - though mainly in custom development areas like low-level television titling and the like.

4. PC

With the high-resolution VGA graphics standard rapidly picking up popularity in the PC stakes, PC owners have at last a screen resolution capable of displaying the kind of hi-res images that effective multimedia depends on. The innovative *PC-Album* package from Freehand (full review soon) utilises its improved screen display to provide a full colour image database capable of displaying 32,000 colours on screen simultaneously, with video camera, colour scanner and optical WORM drive options. The database handling features, while not as easy as *HyperCard*, certainly go a long way to support the tremendous picture quality. On the sound side, the PC is, as always, limited, but at least Data Liberation's soon-to-be-released Games Blaster plug-in stereo board looks set to beef up the machine's sound capabilities. Whilst hypertext front-ends are coming into the fore - witness *HyperPad* and *Knowledge Pro*, there's still a long way to go in the hardware department.

(Left) • At least the quality's at last available on the PC - but there's still a long way to go.

ALSO ON THE HORIZON

Over a dozen multimedia titles were launched at Macworld Expo 89. Among the most interesting was Pergamon Compact Solution's *Guinness Disc of Records*. This will be released in mid-October on CD-ROM and includes animations, hi-res colour pictures, music and sampled sounds of the 60 million selling book. Based on *HyperCard* it'll retail for £60.

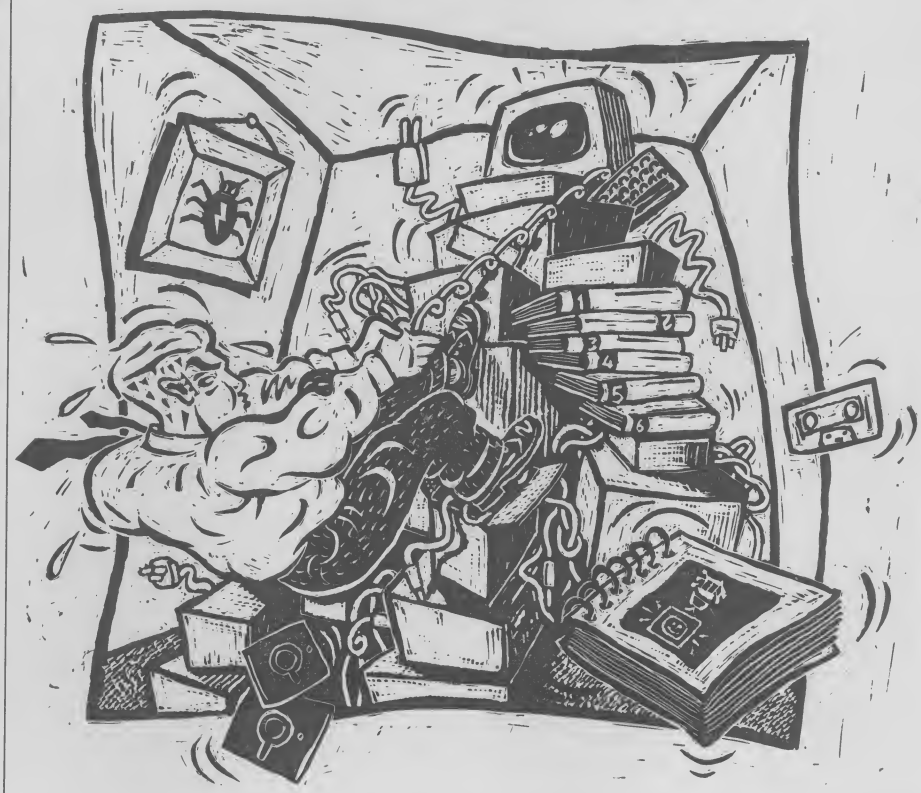
Audio Notes from Warner New Media concentrates on bringing classical CD to your desktop. First of an 'indefinite number' of releases is Mozart's Magic Flute - 143 minutes of music and 210 minutes of audio coming on three audio and graphics CD ROMS. Also based on *HyperCard*, *Audio Notes* annotates music compositions with commentary, story, score analysis, excerpts from other recordings and historical notes, all presented in a 'graphics shell'. Hook it up to a pair of Bose speakers either side of the Mac and the effect is something else.

The variety of multimedia is extraordinary. *Ecodisc* is a CD ROM version of a BBC ITU Laserdisc project which gives the user control over a lakeside wildlife reserve while *Three Mile Island* uses a Laserdisc to place you in control of the ill-fated US nuclear plant with crisis management the name of the game. *Guernica* provides an interactive video exploration of Picasso's famous Spanish Civil War painting while ABC News Interactive has released *HyperCard*-based interactive videodiscs on the conflict in the Middle East and the story of the '88 race for the White House.

• Mozart on the Mac - in full CD effect.

ABSOLUTE BEGINNERS

In part 2 of his series on computing for beginners, Rod Lawton works out which machine is best for you



It's one thing deciding that a computer is just what you need, but quite another choosing which of the many models in the shops fits the bill. In order to decide which is the best machine for each individual, let's take a few hypothetical examples.

- Jimmy Dawes is a hyperactive 14-year-old who spends too much money down at the arcades and not enough time doing his homework. His parents want to get him a computer partly to keep him off the streets, and partly because he's been nagging them for one for six months.
- Lady Eleanor Ponsonby-Smythe sits on the village church committee, edits the parish newsletter and also fancies writing her memoirs.
- Tracy Wilkes is a self-employed hairdresser who's fed up of trying to organise her accounts in exercise books, and who takes half an hour to produce a single mistake-free letter on her old typewriter.
- Steve Smooth wants to play the most up-to-date and good-looking computer games, but also wants a machine capable of word processing, desktop publishing and anything else he might need to tackle.
- Damien LeClerc is a graphic designer working for an advertising agency and wants to move into the field of computerised imagery and animation.

Now you might imagine that one computer would be very much like another, and could therefore follow the same sets of instructions and use the same programs. Unfortunately, this isn't the case. Microprocessors – the "brains" of computers – apart from being made by a number of different manufacturers are constantly being developed, upgraded and replaced by new, more powerful generations of chips. Different microprocessors – if they're to work at their peak efficiency – need to be given their instructions in different ways. This directly affects how computer programs are written. Manufacturers wanting to steal a march on their competitors will frequently embrace the newest microprocessors for their new range of machines, even if it means none of the old software will work. Even machines which use the same processor may not be able to use the same software, since there are a whole host of other design considerations that govern the way hardware manufacturers will build their computers.

Choice remarks

Despite the huge numbers of different-looking machines currently on the market, there are in fact only a few principal models. These break down into two main families – the eight-bits and the 16-bits. (See the technobabble box for an explanation of the difference.) The eight-bit machines tend to be sold as packages consisting of the machine, a monitor, half a dozen games, joystick etc, so it's difficult to make distinctions on price. Broadly, with the exception of the PCW, they all cost around £140 in basic form. These eight-bit machines are:

- **Sinclair Spectrum** This machine was first launched in 1982, and has gone on to sell nearly a million units. The Spectrum remains the archetypical enthusiast-on-a-budget's microcomputer, though in performance terms it's now getting very long in the tooth. Graphics are crude and garishly-coloured, while the sound is confined to bleeps. It's great for amateur programmers and kids who can only afford budget games, but serious programs are almost non-existent.
- **Commodore 64** Launched in 1982 – the same year as the Spectrum – the Commodore 64 has gone on to sell 10 million units worldwide. It's altogether a more polished machine than the Spectrum, with better graphics and a much wider range of software. It's still principally a games machine, but those prepared to look around could find quite a lot of serious programs too.
- **Amstrad CPC** This machine, introduced in 1984, has never quite taken off like it should. Partly to blame must be Amstrad's reluctance from the start to lower prices to a level where the CPC could compete with the Spectrum and Commodore 64. The machine actually boasts very nice, detailed graphics, and a good range of both games and serious software. Definitely worth considering.
- **Amstrad PCW** An unusual range of machines which first saw the light of day in 1985. The PCW was received with some scorn because it was a dedicated word processing machine which, at the time, did nothing else. It sold as a package of computer, monitor and printer for £399 + VAT, and much to everyone's surprise – even Amstrad's, probably – sold like hot cakes. Prices have come down slightly, new models have been added to the range, and there is now quite a lot of software available for the machine – including games.

However, the eight-bit computers above, while perfectly competent in their own way, are yesterday's technology. The last few years have seen the introduction of machines with much more powerful 16-bit processors, which give much better graphics and sound, and work much faster. They include:

- **PC-compatibles** Easily confused with PCWs, PCs are a different kettle of fish entirely. Designed primarily as serious business machines, they have access to a huge array of software –

THE PC PHENOMENON

It's possible for the unwary to confuse the term "PC" with personal computers in general. In fact, PC (or, strictly, PC-compatible) is used to describe a machine which uses the MS-DOS operating system pioneered by computer giant IBM. An operating system is, if you like, a set of "rules" under which a computer works, and if two machines have the same operating system then they are broadly compatible – i.e. they will run the same programs without alteration.

IBM was the company that gave birth to the original PC, but since then a whole host of other manufacturers have taken up the manufacture of PC-compatibles. All these machines can use the same software, because although they are often designed quite differently, with different internal components and processors, they nevertheless work to the standard set of rules that forms the MS-DOS operating system.

This means that many users can start off with a budget PC when cash is tight, and upgrade later on to a more powerful and sophisticated model – maybe even from a different manufacturer – while still being able to use their old software, which they probably know off by heart. It also means that more software exists for the PC than – arguably – for every other machine put together. This is simply because the market is so huge. PCs are the industry standard machines for office use, partly because this huge range of software exists for them, and partly because everyone knows them. It's a chicken and egg situation.

which is increasingly coming to include games too. A PC will set you back anywhere from £500 to £5,000 for a comprehensive system, depending on how much money you want to spend and how much power and sophistication you need. It's the nearest thing you can get to a "standard" computer, since many manufacturers produce them.

▪ **Atari ST** Arriving on the market in 1986, the Atari ST has since proved itself highly competent. Seen originally as a games machine, its popularity and versatility has led to many software companies producing serious programs – to the extent that the ST competes increasingly with the PC for many business applications. Like the eight-bit machines, the Atari ST tends to be "bundled" with sundry other goodies, making price comparisons difficult, but the basic unit costs approximately £300.

▪ **Commodore Amiga** Finally becoming available in 1987, a year later than the Atari ST, the Commodore Amiga is a broadly similar machine which boasts, however, better graphics and sound. Technically more accomplished though it is, the Amiga has not taken off in the same way as the ST. It costs roughly £100 more at around £400, and only now are software houses writing programs for it in anything like the quantity they are for the ST.

All of the above machines are available in several guises. The brief descriptions apply to the base models, but do hold true for all the others in the ranges.

The also rans

In addition to the machines described above, you may well come across some other names. The **BBC micro** is an eight-bit computer that was well-specified when it first came out in the early eighties, and is even now used widely in schools. But by modern standards it's a sluggish, uninteresting relic. Don't buy one unless you can get it cheap or are intent on using only educational software. The **Sinclair QL** is a technical oddity that never caught on. Don't buy one unless you want to have to write all your own programs. The **MSX** is actually a standard format just like the PC. Originating in Japan in the early-mid eighties, it never captured the computing public's imagination over here. It entered the market like a damp squib, and fizzles weakly to this day.

Odd machine out in this catalogue of has-beens is the **Acorn Archimedes**. Not so much a has-been as a hasn't-been-yet. Fantastically powerful and fast, it's also quite expensive and as yet only a limited range of software is available. A machine that deserves to do well but can't really be recommended.

The bottom line

So having looked briefly at the main computing contenders, which will be most suitable for the hypothetical characters we looked at right at the beginning?

Jimmy Dawes, the hyperactive fourteen-year-old arcade fan, would be best off with one of the eight-bit computers – either the Sinclair Spectrum, Commodore 64 or Amstrad CPC (not the PCW). Any one of those machines will be cheap enough (just) for a Christmas or birthday present, will play a multitude of low-priced games, and perhaps teach him a little about computers in general too.

Lady Eleanor Ponsonby-Smythe would be best off buying a PCW. She would have no time for the fancy colour displays of other computers and would appreciate getting everything she needs in one simple, easy-to-use package that's also designed specifically for the needs of people like her.

Tracy Wilkes, the self-employed hairdresser, should buy a PC. She could start of with a word processing program for doing her business letters, and then move onto computerising her accounts and customer details with one of the many purpose-designed software packages available for the PC.

Steve Smooth will find the Atari ST exciting. It's a fast, powerful machine which is also remains at the forefront of state-of-the-art home computing. Whatever new projects or ventures he gets involved in, from publishing to video presentations to games designing, he'll find the machine more than a match for the job.

Damien LeClerc will fall in love with the Commodore Amiga. It's more expensive than the basically similar Atari ST, but is much better at producing computer-generated art due to its additional features and a wide range of very good art and animation programs. It is also a very good machine for games.●

TECHNOBABBLE

Graphics: The general term used to describe a computer's display, which could consist of text, drawings, pictures or even animated cartoons. Graphics can be "crude", "blocky", "high-definition", "smooth" etc

Sound: Most computers emits sounds, from simple "bleeps" to indicate you've done something wrong, to high-quality soundtracks

Eight-bit: Generic term for computers using eight-bit microprocessors – chips which can process eight "bits" of information simultaneously

16-bit: Describes processors which can handle 16 bits of information simultaneously. Actually, not twice as fast as eight-bit processors but 64 times faster

Software: Universally used jargon for computer programs

Power: Fashionable term with a vague meaning encompassing processor speed, memory, storage capacity etc

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THE PD RIPOFF PART 526

To continue the debate on 'The PD rip off' I wish to point that you generally pay for the software on the disk and not small things like labels. Even so most clubs consider this a necessity to keep their customers satisfied. This does not excuse any club from only giving part of a program and damaged disks. If a club can not supply a program that is ordered it should offer a suitable replacement or a refund instead of fobbing the customer off with faulty goods.

Also I think someone should define what profit is. Wages of employees and the owner are included in the costs and profit is anything left over after this. This means that any owner of a PD club can take as high a wage as they like and still claim that the club makes no profit.

Finally, if PD clubs don't make a profit, why are they treated as trade by publications such as yours? You are by no means the only one to do this. PD clubs are more of a hobby than an occupation. This should allow them to advertise as private owners. I understand that you have costs to cover but the cost of advertising for PD clubs having to ply for trade is enormous. Your publishing company must make a profit out of trade adverts (or why would it bother?) so technically you're making profit out of PD. Think about it.

Ian Slater, Paradise Computers, Brighton, East Sussex

• Unfortunately we're not a charity and we have to cover costs too. If there was a sure-fire way of telling the genuine hobbyists from the profiteers we'd gladly give hobbyists cheap rates, but the world doesn't work like that.

Accusing us of making money out of PD is sheer sophistry. If you're worried about it we magazines could always stop taking any ads at all from PD outfits...

ARCHIE RIVAL

I would very much like to take this opportunity to put that downright stupid and intolerable Amiga owner (*Express* 40) back in his dark little corner where every so often you get an Amiga owner crawling from.

I am a very proud owner of an Acorn Archimedes and having seen quite a lot of Amiga software I am quite disgusted. For a start when you first turn the darnn thing on as it is quite hopeless unless you insert a disk. If you're using an Archimedes the very moment you turn it on your straight into a WIMP environment.

And Amiga Workbench! It's so user-unfriendly. A very nice set of commands I must admit, but just you try and do something with it. The last thing is the Amiga's sound. I have never heard anything sound so false in my life. Think *Blood Money* is good? Just you listen to the sound tracks accompanying the Render Bender pictures and then you willl hear the amazing 16 stereo channels of the Archimedes.

Here is a word of warning for that twerp of an Amiga owner and other unfortunates: as from now the Archimedes will do nothing but grow and grow and will not stop growing until the likes of the Amiga owner no long exist.

I would like to congratulate *Express* upon bringing us sensible computer owners an excellent mag. Keep up the good work.

Billy Cassidy, Stockport, Cheshire

• Hah! Think the Archie's sound is good? Well it's nothing compared to the BBC Symphony Orchestra. Take a tube to the Albert Hall, go into one of the Proms concerts for just £2 and wallow in that amazing full stereo sound.

AUTO EXPRESS

In reply to M J Adam's letter (*Express* 41) I agree with some of the points he made (about no-one having a divine right to own an expensive computer and how in the 'real world' people are starving).

As for his suggestion I purchase a 'Ford Fiesta', I already own one in the shape of the excellent, if dated, Dragon 32. To extend the car analogy, the ST is far from being a Porsche or Ferrari and is more of a Sierra. In my case it is the purchase of the computer which is the stumbling block. I could afford most games within 5 to 6 weeks of release. Unlike Mr Adams I think of others as well when I write my letters, including those less fortunate than myself.

Finally to deal with Mr Adams' last point (by which time I feel he was a little hysterical) I never have, and never will, advocate software piracy. I am firmly opposed to it.

By the way, why the reference to 'locking the door and giving yourself a good going over with steel toe caps', Mr Adams?

S J Phillips, Bebington, Wirral

• The computers-as-cars idea is appealing. The PCW is easy: a Morris 1000, reliable, economical and clanky, but no way you can get up to fun and games. The Archie is a Lotus – fast, but a bit plasticky. The PC is the Cavalier or Astra, the classic company model. And as for the good old non-standard MSX, that's easy: Wankels.

SPECTRUM ROW

Regarding MH Knight, 'Rainbow Warrior', in *Express* 41. There are more than seven possible colours (ROYGBIV). The list is endless. Visible light is part of the electromagnetic spectrum (no relation to the Sinclair model) which is a continuous band of colour, ie no breaks. If you classify red, blue, green, etc as 'colours' then so too are X-ray and radio and microwaves.

It's true, computers can really only produce three colours, but these three colours combined in different intensities produce any other colour you like. The ST has eight intensity levels for each RGB colour which will produce 8x8x8=512 different colours, whereas the Amiga has 16 different intensity levels producing 4,096 colours.

Paul Gregg, Antrim, NI

• Well, it all depends on how far away from the monitor you sit, doesn't it?

AMAZING RESEMBLANCE

• Morris 1000

• Amstrad PCW

There's only three if you put your eye right up against the screen, and only one if you sit half a mile away, a sort of bluey haze.

EXCUSES, EXCUSES...

During May I ordered an Amiga 500 with *Photon Paint* and the Ten Star games pack from Homesoft (UK) Ltd. I also paid £10 for next day delivery. I got the computer three days later without the *Photon Paint* and the games pack. I got about seven weeks later minus games. After that it was excuse after excuse. Here's a selection:

1 We will send them soon.

2 They've been taken to a computer show.

3 The last pack has been sent with a new order.

4 Commodore do not do the Tenstar games pack any more.

5 We will refund the £25.

6 You can have *Robocop* instead of the games pack.

At the very least I've phoned about 20 times. It's costing me a fortune in phone calls. I never did receive the games pack or the £25 or *Robocop*. I'm unemployed because of being ill, so I can't afford to pay for something and not get the concerned items.

I think the company might have gone bust recently because when I phone all I get is the no such number tone and engaged tone and sometime it will just ring without any answer.

I might start proceedings in the small claims court soon. It only costs £7.

Christopher Wilde, Stockport, Cheshire

TOP TEN TIME!

The last, the very last, top ten most hated things about computing...

CAPITAL IDEA

My top ten hates:

1 Bros (you did print their pictures).

2 Kylie and Jason (did you know their voices go through seven computers before the record is finally pressed).

3 People who say 'My Amiga is better than your ST'. The ST runs 860000Hz faster than the Amiga, and it's got more capital letters.

4 People who say 'A computer is only as good as its software'.

5 STFMs, because of the awkward mouse ports. I've an old STM with accessible ports.

6 ST games, they're too deep nowadays. Bring back the old platforms. Chubby gristle rules OK.

7 Pascal, it's too damned strict.

8 My mono monitor. It keeps resetting when you least expect it.

9 Boring A-level computer teachers. If you asked a question all you got was 'well, you tell me!'

10 The lack of security on the school Nimbus network. Just go up to the server and type the following:

```
stop
c:\mgr\netman
F2
[someone's user identification]
F10
```

And there displayed before your very eyes is the password.

Paul Gregg, Antrim, Northern Ireland

• The STE has even more capital letters so is clearly an even better buy.

I'm amazed that a tuneless drone such as Kylie's so-called, would-be, self-styled, oh-so-sweet 'voice' I don't think, can have gone through seven computers before you hear it. Unless one of them happens to be an ST, perhaps.

Anyway, for sending the last Top Ten Hates, you qualify for a prize. Some software for your ST is winging its way to towards you even as you read this...

• I'm afraid it looks as if Homesoft have indeed gone bust, so your money might well have gone west (along with that of the half-dozen or so other people we've had write in about this company). At least you did get your Amiga...

THE INFERIOR ST

As a casual user I do not often buy computer magazines, though after searching for bargain Amiga memory expansions, I purchased *Express*, and was impressed by an interesting and lively magazine. It was after reading the letters column that prompted me to write for two reasons.

Firstly there was the presence of the usual Amiga hate club in the form of a Mr MH Knight, who was attempting to belittle the Amigas graphics capabilities in the face of the inferior ST.

Well, I am sorry Mr Knight but I will have to shatter your dreams. Your beloved ST is nothing more than a 16 bit Spectrum with sound to match, literally. If you cannot handle that, it's your problem.

Secondly the piracy debate seems to be the centre of the great controversy and although there is no justification for piracy there are two sides to every argument. How many times have you been ripped off by software which could have been written better in Logo?

In my opinion software firms should put their own houses in order first. They should be responsible for the best possible software quality, by perhaps appointing an independent review body to vet software before it is released on an unsuspecting public. Maybe then with quality programs and moderate prices it may help deaden the fires that fuel software piracy.

Stuart Birchall, Upholland, Lancs

• Well, we like to think that we're quite a good independent review body, and if you follow our recommendations you won't buy too many duff games. But if you make games better, surely that'll lead to more piracy – if there are more good games around, then it becomes less possible to get all the good ones honestly on the sort of wages most of us earn. What makes pirates do it is knowing they can almost certainly get away with it.

GETS MY BACKUP

I read with concern of the demise of 'back-up' devices from the market. Although I do not own one of these devices I have recently considered buying one. Not to pirate games, but to allow me to play them in my chosen format.

I recently ordered two games for my Spectrum +3 only to be informed by the mail order company that these are only available on tape for 128/+2 Spectrums. The protection built into these programs will be far too complicated for me to break and I must buy a £44 device if I want to be able to store and play these games on disc.

The software industry in general is a shambles and would not run smoothly if it was mounted on ball bearings and oiled every day. Here am I with cash to spend on software that someone refuses to market on disc whilst trying to stop me buying the device that will enable me to use the software to my best advantage. Basically it all boils down to why I have to consider buying the device in the first place – over-protection. An outlay of £70 to play two games on a Spectrum is ludicrous.

Game software companies need look no further than their own doorstep to find those responsible for the fall in software sales. Their introduction of high prices and absurd damaging protection routines created the market in the first place for the devices they alone now wish to ban. Furthermore these companies insinuate that software is overpriced because of piracy. If they are unable to reduce this practice, which I doubt, will they then reduce the prices accordingly? I think not!

PT Street, BFPO

• Your points seem quite valid to me, so long as the backup devices are the sort that will only run backed up software while they are hooked up to the machine, preventing pirate copies from being distributed.

YOU'VE HAD YOUR CHIPS

Recently I saw an advert in a newspaper for an Acorn Electron at £20. Having some money to spare I decided to buy it and a few days later took it home with the intention of using it as some sort of second processor for my Beeb.

Unfortunately, for various reasons I had been unable to have a demonstration before I bought it and when I got it home I discovered it didn't work. On opening up the machine I discovered why: half the chips had been removed, and none too gently at that.

Furious, I grabbed the phone and rang up the previous owners, but as it turned out they were not the ones at fault.

Before I had got hold of it, they'd had another answer to their ad. A woman had come to their house and explained that her husband would not let her buy it unless they saw a demonstration. Unable to give one themselves, they let her borrow it to try it out provided she left a deposit. She left no address or phone number. The next day she returned, with the excuse "It's not really what we're looking for". Unable to test it themselves, the owners failed to notice that half their chips had been stolen, and remained ignorant until I bought it.

Luckily for me, they were most kind about it and returned my money with no fuss at all, but it still irks to think that out there are people who can stoop to such dirty tricks as that to obtain spare parts. What with hackers, pirates and the rest already giving us computer users a bad name, we could do without the miserable sods who do this sort of thing getting in on the act as well.

Rafael Jay, Bath, Avon

• A cautionary tale to any of us thinking of buying second-hand. Check the machine before you buy.

Once I had an irate call from someone who'd bought a PCW second-hand. Apparently all the address marks on the data disks were missing, and he wanted to know where he could buy some replacements, as the dishonest vendor had obviously kept them for himself...

COUNTER TENNER

You asked for contributions for your A to Z with £10 going to the writers of any printed. Well I promptly sent in my trio and imagine how pleased I was when they were included in issue 30's mail section. Then imagine how suicidal I was when I simply heard nothing from you! Has your accountant run off with an Amiga or was it simply a case of what, £10, let's go down the pub?

To my knowledge I was the only person to write in on the subject, but oh well, all's fair in love and assembly language. Finally could you please put an end to these endless lists of top tens. They are terribly confusing for people who can only count up to two.

John Nice, Grays, Essex

• Sorry about the £10; you were the only person to write in by the way. I always wondered how that YTS trainee we entrusted the payouts to could afford so many rounds in Hatchett's next door... your money is on its way anyway.

Rest assured this is the last week of the Top Tens. But watch next week for a new section in the letters page...

STOP THIS DISGRACE

I was surprised at the amount of Amiga vs ST arguments in the letters pages. There shouldn't be any arguments of this kind for the same reason that there is not an ST vs Spectrum battle. The ST costs more than the Spectrum so is expected to be better; the Amiga costs more than the ST so it should be better.

Leslie Johnstone, Glasgow

• Ah, but like philosophy, all the fun is in the arguing itself, not in the conclusions. As Douglas Adams said, what's the point of arguing if there is or isn't a God if some clever dick goes and gets His phone number for you next morning?

• If you know his phone number, don't tell us

COLOURING UP

In *Express* 38, you carried a survey of dot matrix printers. In it you said that Star's LC-10 could be upgraded to colour printing via a cheap add-on device.

However, the LC-10 and LC-10 Colour are two distinct machines. While a standard black ribbon can be used in the colour printer, it is not possible to upgrade from the mono LC-10 to the LC-10 Colour.

Users that require the flexibility of adding colour kits are served by our recently launched Professional Series of 9 and 24 pin printers.

Roger Bayley, Star Micronics UK

• Whoops, sorry about that! Glad to let you put the record straight. Just one thing, Roger, how come it took so long for you to write to us? Were you waiting for the Star to finish printing the letter in high quality? Only joking.

EMULATING HEROES

I am the proud owner of a Sinclair ZX81. Unfortunately, there seems to be a distinct lack of software available at the moment for this wonderful little machine. Also my company uses IBM PCs and mainframes, so I cannot take my work home with me as I cannot get the disk to fit my tape recorder.

I was therefore wondering if there are any emulators available – the sort of thing I would be after is a Cray Emulator, or even an NCube Emulator.

David Way, Bournemouth, Dorset

• Good news – yes, there is an NCube emulator for the ZX81! It's available from Express Enterprises here at Bath. It's a simple cassette and plug-in module, with a through port for the 16K memory module, and costs just £19,999,995.

SNIPPETS

A very simple solution to the current copying devices problem. Let people buy them by the dozen, but ban every single kind of computer so that they can't use them. As for piracy, make possession of blank disks punishable by hanging...
John Nice, Grays, Essex

• No deterrent to Amiga owners I'm afraid – their machine hangs all the time.

ELLIPSIS IS SO...

I happen to enjoy piracy and copying. I know what I am doing is illegal and personally I don't give a...
Dave "Dogsbody"

• Just as well, because...

DON'T BE A SEUCKER

Don't anyone buy *SEUCK* on the Amiga – total and utter rubbish. The size of the playing area is pathetic, the scrolling hideously jerky and the sprite movement appalling. Worst of all is that it is only in 16 colours, although it's in lo-res. A total waste of money.
Phil D of BNC

• So it would be fair to say you have reservations about it?

WRITE RIGHT

I saw an advert in an Atari ST monthly magazine for the *That's Write* word processor. It is presented by Compo in Last of the Summer Wine. I wonder if the program is like Compo, ie. bug ridden, a mess, badly packaged...

Steve Sharples, Bingley

• And illiterate – as suggested by its name?

Pedants' Point

(strictly, not a point but an area)

ENTROPICAL PARADISE

Your definition of entropy (*Express* 41) is inaccurate. Entropy is a measure of the unavailability of a system's energy to do work. Also in a wider sense, a measure of the disorder of a system. The end of the universe is when entropy is at a maximum, known as the 'heat death of the universe', a theory by Rudolph Clausius (1822-1888), a German physicist who introduced the concept of entropy.
Paul Gregg, Antrim, Northern Ireland

• Looking around the Express office, it looks like entropy is approaching its maximum. No-one's available to do any work, and the whole damn thing is in chaos.

I'm afraid I have to quibble with you anyway. Our reference to entropy was not a definition but a description.

PROTECTION RACKET

As viruses spread so do virus killers. Stuart Anderton looks at a 'complete solution' for Amiga owners

VIRUS PROTECTION TOOLBOX

• Amiga • Price not yet fixed, around £30 expected • HB Marketing • 0895 444433

Viruses have become rife on every popular home micro, and the Amiga is no exception. Indeed because of Commodore's decision to rely heavily on disk rather than build Workbench into ROM, the Amiga is more susceptible than most.

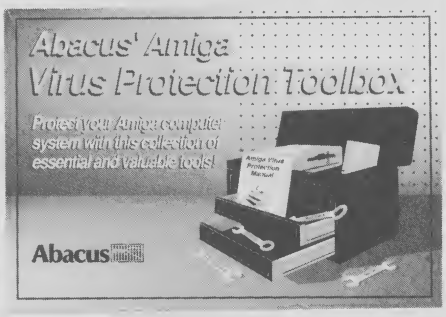
As viruses spread, so do virus killing programs – some cynical souls even suggest the same people might be writing both! Most viruses sit in the disk's boot block and virus killers to tackle them come in two common varieties. One is a fully fledged checker which you run and then put the disks you want to check in one by one. The other kind works as a memory-resident background task, checking each disk you insert as you work.

Abacus' *Amiga Virus Protection Toolbox* is a suite of programs which includes a checker of the latter type. The program loads itself into the Amiga's memory and watches the boot block of every disk you insert. If it finds anything untoward it lets you know and gives you the option to kill it.

A common problem with this kind of boot block checker is that many pieces of commercial software, particularly games, have a peculiar boot block as part of their copy protection. It is all too easy to wipe out your favourite game by sleepily pressing the wrong mouse button. The *Toolkit* gets around this by giving you the chance to save a copy of the dodgy sector and allowing you to restore it if it was in fact OK. You can use this facility to keep backups of all your games' boot sectors in case they ever develop an infection.

The boot sector checker is easy to use and can simply be incorporated into your startup_sequence file. Another program on the disk is considerably more technical.

This program searches out the newer and more deadly overwriting and appending viruses. These charming characters don't bother with the obvious boot sector, they physically tag themselves onto data files and programs, being activated when they are run. Some software now checks itself to see if it has been infected but the only way to protect all your files is to keep a record of their sizes and creation dates and to monitor them for unforeseen changes. That is what the *Toolbox* program does


Abacus' Amiga
Virus Protection Toolbox
Protect your Amiga computer system with this collection of essential and valuable tools!
Abacus

Regrettably it is anything but user friendly. It must be launched from the CLI and can take a host of optional parameters. Checking for these insidious program killers is an immensely time-consuming process and really only practical or useful with a hard disk drive. It still takes upwards of 20 minutes to check a disk even then.

The most unusual, and frankly worrying, part of this package is the manual. Here the treatment of "what is a virus?" goes well beyond what is necessary to use the programs or kill the viruses. It amounts to almost a programmer's guide to virus writing, with dissassemblies of three leading viruses included. The authors have even thoughtfully corrected a 'programming error' in one of them. This sort of detailed description of viruses can only make the amateur writer's task easier and verges on the irresponsible.

Conclusion

All in all then the *Toolkit* provides all the programs you need to protect yourself against viruses, but be warned that complete protection takes a lot of time and effort. There is no easy way to protection bar keeping your computer isolated from the outside world.

SOFTWARE EXPRESS

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STARTLING FACTS

After months of speculation, Atari has finally revealed the specifications of its so-called Amiga-beating STE and ST-compatible workstation. Adrion McHeriot reveals all.

Atari 1040STE

As far as Atari is concerned the STE is its top-end entertainment system. Doubtless you'll agree when you've read what it offers. The STE replaces the current 1040 and, like the 1040, comes with 1Mb of memory, a double-sided drive and a £499 price tag.

Externally the new Atari is identical to all existing 520 and 1040 STs, although two new game controller ports can be found at the back of the machine.

The two new 15-pin non-standard game controllers can each look after two joysticks. This means a total of six sticks can be plugged into the computer – remember the ST already has two joystick sockets underneath the machine. Forget the family outings, it'll be six-player *Gauntlet III* from now on! The 15-pin controller ports can't accept standard Atari joystick connectors; an adaptor is necessary. Someone somewhere is going to make a fortune...

As well as joysticks, a set of paddles can be plugged into each controller. And one of the ports also accommodates a light gun or light pen.

The operating system used by the STE is the much touted but little seen TOS 1.4.

Internally the STE is very similar to the ST; everything inside the ST can also be found in the STE. Virtually 100% software compatibility is thus assured. Of course, the STE does have extra sound and graphics hardware.

Graphics first. A blitter processor is supplied as standard. Although all current STs can have a blitter attached, only the Megas come with them fitted. Essentially the blitter speeds up window redrawing and other block data manipulations.

The palette has been increased from 512 to 4,096 colours. However, no changes have been made to the resolutions or the number of colours that can be displayed on screen.

Three new hardware registers are provided for horizontal and vertical scrolling, and split-screen displays.

• The STE: in appearance rather similar to the 1040, note the conspicuous 'E' on the nameplate

Lost in music

In addition to the pathetic YM2149 noise generator, the STE comes with a stereo 8-bit PMC (pulse code modulation) chip. Essentially the DAC (digital to analogue converter) plays sampled sound at one of several constant rates: 6.25, 12.5, 25 or 50kHz. The output of the DAC is sent first to a four-pole low-pass filter, which performs anti-aliasing (smoothing) on the sound data, and then on to a two-pole fixed frequency (16kHz) low-pass filter. After its cleaning the sound data is sent to a National LMC1992 chip. This slab of silicon enables tone and volume changes to be applied to the sound. Output is through the monitor/TV speaker or a stereo RCA-style jack at the back of the computer.

Interestingly enough, the stereo PCM sound can be mixed with the output from the YM2149 chip. In total there are five voices of sound plus one of noise. Not bad!

Amiga beater?

Fast omni-directional scrolling shoot-'em-ups with digitised ditties simply aren't possible on the ST as it currently stands. There's no way the processor can look after software scrolling, hordes of sprites and sampled sound. Psygnosis' *Blood Money* is probably pushing the ST as far as it will go.

Because of the hardware scrolling and DMA (direct memory access) sound, the STE's 68000 processor can get on with other tasks. Hardware scrolling is ridiculously fast – identical to the Amiga – and requires very little processor attention. DMA sound doesn't involve the processor at all – apart from some setting up to begin with – so digitised sound can be played in parallel to the 68000 doing other jobs.

While the STE's sound capabilities are damn good, they're not quite up to the Amiga's. ➤

NEW TO THE ST?

The technical specifications for the standard 520/1040 ST run like this:

- **Ports: DMA (direct memory access), serial, parallel, modulator, colour/mono monitor, second floppy disk, MIDI In/Out, cartridge, mouse, joystick.**
- **Memory: 520, 512K; 1040, 1Mb.**
- **Processor: Motorola 68000 rated at 8MHz.**
- **Storage: One double-sided 3.5-inch floppy.**
- **Sound: Yamaha YM2149 programmable sound generator. Capable of three voices of square-wave sound plus a noise channel. Mono output.**
- **Resolution/colour: Three modes; 320 by 200 pixels with a maximum of 16 colours on screen, 640 by 200 with four colours on screen and 640 by 400 in monochrome. All colours are chosen from a 512-colour palette. Optional blitter.**

The Amiga has four channels of stereo sound – and, by using some clever tricks, more channels are possible (the trade off is sound quality).

The ST's processor is clocked slightly faster than the Amiga's so 3D games which require heavy maths calculations will always be faster on the Atari machine – *Starglider II* is proof enough.

As far as colours go the Amiga wins hands down. While many of the modes on the ST and Amiga are similar, the Amiga can usefully display 32 colours on screen – and up to 64 colours using a slightly fudged mode known as halfbrite. The colour palettes of both machines are identical, but the ST can only display 16 colours normally. That said, the STE's extra sound and scrolling hardware mean that the processor can get on with things like displaying extra colours.

After all the hype, the STE fails to be Amiga-beating. While the upgraded ST is undoubtedly a better machine than its predecessors it still hasn't overtaken the Commodore machine. Many of the STE's features are on a par with the Amiga's, but most fall a little short.

What to expect

Why should programmers bother writing for the STE? The market will be tiny to begin with. Exactly the same situation occurred when Atari fitted all 520s with double-sided drives. So many ST owners had single-sided drives that software houses couldn't use the second side for fear that too many users would complain. That situation hasn't changed yet, although some games do have extra features stored on the second side of the disk. How long will it before the STE is accepted as the standard? Probably never.

The only thing you can hope for is that programmers will write two versions of a software package. The top half of the disk could contain the standard ST version while the bottom half could contain the STE re-write. Let's hope that happens.

• The TT's destinctive styling could set a trend for the nineties

WHEN?

Both the STE and TT will be displayed by Atari at the PC Show held late in September. The machines aren't expected to be available until November.

DEEP INTO THE STE'S FIRMWARE

The ST and STE can accept an external sync supplied via a genlock so that synchronisation of the machine's video signal is possible with an external source. In order to do this reliably the system clock has to be phase-locked; no way of doing this is provided on the ST. The STE, however, allows this to be done by grounding pin three on the monitor connector and supplying the clock onto pin four (mono detect).

Registers between FF9200 and FF9202 can be used by the 68000 to read the status of the four new joystick ports. FF9210 to FF9216 look after paddles while FF9220 to FF9222 handles the light gun and light pen.

The video address counter (FF8204 to FF8208) is now read/write in the STE. This means that the video refresh address can be altered during a frame. FF820C allows positioning of the screen on word boundaries (vertical scrolling is thus possible).

A fourth bit has been added to each of the colour registers (starts at FF8240 and ends at FF825E), however, not in the location expected. The least significant bit is added above the most significant bit of the original palette registers. In this way colour will always be the same on the ST and STE.

Horizontal bit-wise scrolling is implemented by register FF8264.

A frame, or group of samples, can be played once or looped, the sample rate can be determined, and either stereo or mono output can be selected. The registers that provide this control start at FF8900.

Access to the LMC1992, which handles tone and volume, is possible via registers FF8922 to FF8924. The sort of thing the volume/tone control chip can do is set the master volume, set left and right channels individually, define treble and bass levels and mix the YM2149 and eight-bit DAC output.

Atari TT030-2

A very strange looking beast indeed. You either love it or loathe it. No UK price for the TT (standing for thirty-two thirty-two) has been finalised yet, but the German machine costs 5700DM. At today's exchange rates that's around £1900.

You're getting a fantastic deal when you realise what's involved: a Motorola 68030-based machine with some fancy graphics and sound hardware, 2Mb of memory, 30Mb hard drive and a high resolution colour monitor. Atari seems to have adopted Amstrad's all-in-one philosophy. And that's no bad thing.

The TT has all the ST ports – DMA, MIDI, cartridge, serial, parallel, mouse and joystick – together with some extras. There's a SCSI and ASCII port for attaching just about any type of high-capacity storage system, an Ethernet socket for hooking into a network and an internal VME bus for connecting virtual memory devices (like a hard drive).

The keyboard and mouse are identical to those offered on the Mega ST.

Atari's TT runs an upgraded version of the ST's operating system, TOS 030. The new OS is necessary because the '030 can access four gigabytes (although the TT can only have 26Mb maximum on board) and there are minor instruction differences between the '030 and the 68000.

Because the TT contains virtually all the hardware present in the ST and STE (see panel), almost 100% software compatibility is assured.

Another version of the TT (the TT/X) is due for release early next year and will come with 4Mb of system RAM, a 60-80Mb hard drive and both Unix V and TOS 030 operating systems. Price hasn't been decided yet, but is expected to fall between £3500 and £4000. Another bolt-on OS, MS-DOS, is due in the middle of next year.

For the price there is no beating the TT; an '030 machine with sophisticated sound and graphics technology for under £2000 is really something. The question who is going to use it, and for what. You can run ST software on the thing, but that seems wasteful. Judging by the specifications, it is meant to compete with the Mac II market – but with no high performance software to back it up, just what is going to happen to it? The TT/X will obviously become a low-cost Unix workstation while the TT could – in a few years time – turn out to be a neat games machine. Surely not!●

• The TT goes on show for the first time at the Dusseldorf show

TT specifications

Processor: Motorola 68030 clocked at 16MHz. A 68881 or 68882 maths co-processor can be added to the system.
Memory/storage: 2Mb of RAM. Expandable to 8Mb using 1Mbit chips or 26Mb using 4Mbit DRAMs. 30Mb hard drive fitted.
Operating system: TOS 030. MS-DOS and Unix V available next year.
Resolution/colour: All standard ST modes supported – 320 by 200 in 16 colours, 640 by 200 in two colours and 640 by 400 in monochrome. Plus 320 by 480 in 256 colours, 640 by 480 in 16 colours and 1280 by 960 in monochrome. All shades are taken from a 4096-colour palette.
Sound: Standard ST sound generator plus a stereo eight-bit PCM (pulse code modulation) chip and a tone/volume controller.
Ports: Everything the ST offers (MIDI, serial, parallel, DMA, mouse, joystick, cartridge and so on) plus SCSI, ASCII, Ethernet and an internal VME bus.

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40 TOP WORD PROCESSORS

- **Buying?** We reveal the best buys for your machine
- **Upgrading?** We advise you on whether it's worth it and the best way
- **Pondering?** We show you how your word processor compares with all the others

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4. The order including the voucher must be received by the advertiser before the closing date printed on the voucher.
5. You must fill in the details on the voucher.

THE TOP WORD PROCESSORS

The most vital piece of computer software for most serious users is the word processor - many use their micro for nothing else. Here is Express' verdict on the best you can find

Probably the most important 'serious' use of your micro is word processing. Anything from a letter to a novel is better prepared on a micro than on a typewriter: editing is easier and you can keep making those final adjustments right up to when you decide to print.

All word processors allow you to create, edit and print simple documents, and of course store them on disk or tape to enable future use. All let you move, copy or delete blocks of text, and use a variety of type styles. And you can set up different layouts – change margins and tab settings in a document and so on. Many packages allow you to write 'macros' – you give a series of commands which you can subsequently issue with a single command or keystroke (for example, copying all the chapters of your book from one disk to another for backup just by the one command DO BACKUP or suchlike). Fine for letters or doing the odd bit of writing.

What you pay for on the more expensive word processors will be spell checking facilities, word counters, the ability to display effects like bold and italic and different sizes on screen ('what you see is what you get' or WYSIWYG) and mail merge (send letters to each of various names in a list with each person's details automatically included in a letter – the 'Reader's Digest Prize Draw' letter we've all received some time). 'Serious' use – for writing or business – will demand a program like this.

Really advanced programs let you include graphics in a document, work on several documents at once each in a separate 'window' on screen, automatically generate footnotes and indexes and bibliographies and so on. This is for the professional – the large-scale business user, academic or writer.

Here's the *Express* guide to the best word processors for each machine. A brief description and the highlights and drawbacks of each are included. In 'Value for Money' five stars is the maximum

PC

● PROTEXT V4

£100 • Arnor • 0733 68909

For sheer text and file handling Protext stands out. It's fast, flexible and full of features; good spell checker and mail merge facilities so powerful you can write program-like text and file handling routines. For writers and journos this is a must.

▲ Fast
▲ Spell checker
▲ Powerful mail merger
▲ Powerful macros
▲ Loads of extras – calculator, word counter etc
▲ Two file editing

▼ No real graphics capability
▼ Not good at handling complex layouts

VALUE FOR MONEY ★★★★★

● TASWORD

£50 • Tasman Software • 0532 438301

Superb value and fast. A few odd limitations but an excellent basic word processor. TasSpell, the spell checker, also available, along with TasRes, the memory resident version of the processor.

▲ Memory resident and fast
▲ Easy to customise
▲ DOS shell macros
▲ Word count, notepad features etc

▼ Clumsy text insertion
▼ Some limitations – find and replace won't accept spaces, blocks must be whole lines etc

VALUE FOR MONEY ★★★★★

● CELEBRITY

£80 • Software Paradise • 0222 887521

A well designed word processor with a lot of extras and plenty of appeal for the first time user. It doesn't show the compromises usual with beginner's packages.

▲ Good clear command structure
▲ Calculator, calendar, DOS manager etc
▲ Thesaurus and spell checker
▲ Up to four text windows

▼ Thesaurus US and a bit slow
▼ Window dimensions fixed

VALUE FOR MONEY ★★★★

● MULTIWRITER 2

£115 • NewStar Software • 0245 265017

A very powerful package that includes many features usually found only on really expensive word processors. WordStar dot commands can be included directly in a document so this may be ideal for WordStar diehards. Lots of extras – author's utilities and a filing program, for example.

▲ WordStar compatible
▲ Good menu and context sensitive help
▲ Extras: contents and index generator etc
▲ Filer utility

▼ Filer awkward to use

VALUE FOR MONEY ★★★★

● BORLAND SPRINT

£199.95 • Borland • 0734 320022

A hugely powerful word processor – certainly worth looking at if you need the complete works. Breathtakingly fast with an autosave feature that means even if the power goes your document has been saved exactly as it was at that moment. Comes with front ends that make it look like WordStar, WordPerfect, MultiMate or Microsoft Word if you're used to those packages. A bit complicated to use though and modelled on C, which doesn't help.

▲ User interfaces for WordStar etc
▲ Thesaurus and check-as-you-type spell checker
▲ Cross-referencing
▲ Very powerful indexing facilities
▲ Laser and PostScript support

▼ Very complex to use – only get it if you really need all the power
▼ Still a few little bugettes

VALUE FOR MONEY ★★★★★

● MICROSOFT WORD

£395 • Microsoft • 0734 500741

Another of the heavyweights. Packed with every feature you can imagine, but you're paying for it. Easy and intuitive to use for such a high-powered package – ideas outliners, contents/ indexing and footnotes, very good graphics facilities – and of course it runs under windows and OS/2.

▲ All the heavyweight features:thesaurus, spell checker, author utilities
▲ Ideas outliner
▲ Good graphics import facilities
▲ Runs with windows and OS/2
▲ Easy to use

▼ Very pricey
▼ Need a powerful machine – slow unless you have a 286 or 386

● WORD PERFECT

£250 • Sentinel • 0932 231164

Supposedly the biggest selling word processor on the PCs. A huge program with everything you could ever need: thesaurus, spell checker, two column text, footnote and index generation, automatic date insertion, end notes, mathematical symbols etc etc etc. Frankly though a disappointment for the huge price; only any use if you're already committed to the program because of training – or if you can get it on expenses.

▲ Everything you could ever need in a word processor
▲ Exemplary manual
▲ Available on minis, mainframes as well as micros

▼ Vastly expensive
▼ Some very complex keystrokes for functions – must be learned by rote

VALUE FOR MONEY ★★★

● CHIWRITER

£92 • Shareware Marketing • 0297 24088

The word processor for scientists. Originally a shareware product, this word processor lets you design and use predesigned fonts for scientific use. Can cope with any mathematical symbols – even the most complex integrals for example. The most impressive WYSIWYG you'll ever see! Might be worth hanging on a couple of months for the PC version of LocoScript though, which will no doubt outperform Chiwriter for less money.

▲ Handles any maths – integrals, complex set theory symbols etc
▲ Does foreign characters too
▲ Footnotes and font designer

▼ Limited as a word processor: no mail merge, word count only after spell check

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30MB GENUINE AMSTRAD HD								

AMSTRAD 2286	MONO		COLOUR		12HRCD		14HRCD	
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Also with 1084S monitor and LC10 Colour Printer £749

AIR MILES PACK
Inc. Modulator, 24 games on four discs: Arcade, Adventure, Board and Shoot-em-up games, Joystick, plus: 3 additional individually boxed games, Spritz Art packa AND 500 AIR MILES (Paris or Amsterdam is 450) £399
Also with 1084S monitor and LC10 Colour Printer £799

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Inc. Modulator, 24 games on 4 discs: Arcade, Adventure, Board and Shoot-em-up games, plus: The Works Spreadsheet, Database, Word Processor £435 inc VAT
OR Publishers Choice £450 inc VAT
Also with 1084S monitor and LC10 Colour Printer ADD £399

EXPANDED PACK
Inc. Modulator, 24 games on 4 discs: Arcade, Adventure, Board and Shoot-em-up games, plus: A501 RAM Expansion and Dragons Lair £539 inc VAT
Also with 1084S monitor or LC10 colour Printer £938.

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VALUE FOR MONEY ★★★

● TOPCOPY PLUS

£109 • Innova Software • 0453 835379

Big brother of Topcopy – a very powerful and well-featured word processor. Verging on the 'big league'. Very fast – memory resident – and keeps everything reformatted as you go. Multi document handling together with the speed of operation makes it ideal for people who shunt text around a lot. good spell check and mail merge too.

▲ Memory resident
▲ Can import text from defined areas of underlying screens
▲ Auto reformats but still fast
▲ Three files on screen at once, handles up to six documents
▲ Spell checker and mail merge
▲ Very fast

▼ One or two useful commands missed (eg. swop letters)
▼ No auto backup of files

VALUE FOR MONEY ★★★★

● GALAXY

PD (ie. free) • Advantage/ PDSL • 0242 224340/ 0892 663298

One of many public domain word processors that resembles WordStar. Doesn't compete with ones you pay a hundred quid for, but for the price of a disk you get a usable program ideal for occasional use.

▲ Menus
▲ Spell checker
▲ For the price of a disk!

▼ Restricted power – best for occasional user

ST

● 1ST WORD PLUS

£79.95 • Electric Distribution • 0480 496789

The big brother of 1st Word, the program that comes with the ST, this handles graphics and can even capture screens directly in Degas format. Lots of good features, but the keystroke sequences can be a bit tedious.

▲ Reads Degas, Neochrome and Doodle format pics
▲ Spell checker
▲ Mail merger
▲ Multi column printing
▲ Fast and efficient
▲ Good display

▼ Keystroke sequences get tedious – no shortcuts
▼ Have to save files before printing
▼ No index on manual!

VALUE FOR MONEY ★★★★

● WORD WRITER

£79.95 • Electric Distribution • 0480 496789

A great little WYSIWYG word processor. No graphics facility but excellent text handling – spell checker, mail merger, thesaurus. Good shortcuts which you can make up yourself. Outliner included to help you structure your writing. Only grumble is with its layouts – having more than one in a document is very awkward.

▲ Spell checker, mail merger and thesaurus
▲ Excellent shortcuts – delight to use
▲ Outliner included to help you structure your work
▲ Good use of mouse

▼ Layouts restricted

VALUE FOR MONEY ★★★★★

● PROTEXT

£99.95 • Arnor • 0733 68909

For sheer text and file handling Protext stands out. It's fast, flexible and full of features; good spell checker and mail merge facilities so powerful you can write program-like text and file handling routines. For writers and journos this is a must. Odd on the ST as it doesn't use GEM – it's really a powerful keyboard-driven text editor.

▲ Fast
▲ Spell checker
▲ Powerful mail merger
▲ Powerful macros
▲ Loads of extras – calculator, word counter. memory editor etc
▲ Two file editing

▼ Restricted WYSIWYG
▼ Ignores GEM totally
▼ Command driven – no menus

VALUE FOR MONEY ★★★★

● THAT'S WRITE

£129 • Cavendish • 01 323 4761

A powerful, non-GEM word processor that offers many features not found on many programs. Produces great printed results and best for the 'printout-oriented' user. Font designer, facility to grab screens, WYSIWYG, automatic index and contents generation, hyphen control etc. included.

▲ Excellent printed results, good layout control
▲ Contents and index generation
▲ Good font use – font editor too
▲ Powerful macro system

▼ Manual dodgy
▼ No spell check/ mail merge/ graphics
▼ Funny screen fonts

VALUE FOR MONEY ★★★★

● WORDUP

£59.95 • HB Marketing • 0895 444433

Almost a DTP package with some excellent features like graphic import, automatic text flow round graphics, lots of different type sizes and styles. Great for producing fancy and impressive looking documents.

▲ Good choice of fonts
▲ Lots of control over style
▲ Graphics import
▲ Auto text flow around graphics
▲ Mail merger

▼ Can only print Wordup's fonts
▼ Best with laser or 24 pin printer
▼ No spell checker

VALUE FOR MONEY ★★★

Simply the best business software programmes in the world.

From typing exercises to banner printing; from three-dimensional art to memory-resident spreadsheets, these business software packages represent not only the finest programmes but are also available at great value prices.

Mavis Beacon

Mavis Beacon Teaches Typing makes learning fun. Exercises include historical quotations, riddles, and fascinating facts from the Guinness Book of Records. And when you make a mistake, it's explained in conversational English, not just a series of beeps.

Runs on any IBM PC, XT, AT, or PS/2 or true compatible with DOS 2.0 or above, a minumum of 256K RAM and one disk drive (5.25" or 3.5").

Twist & Shout

Twist & Shout enables you to print almost anything sideways, from a huge spreadsheet to banners with letters a foot high. Plus, it includes a disk-based print spooler which allows background printing for all programs which print.

Twist & Shout runs on any IBM PC, XT, AT, or PS/2 or true compatible with DOS 2.0 or above, a minumum of 256K RAM and one disk drive (5.25" or 3.5"). Over 500 dot matrix, inkjet and laser printers are supported.

Mindscape Business Software

Numbers Up

Numbers Up is a unique memory-resident spreadsheet which is fully compatible with all versions of Lotus 1-2-3. And it occupies just 12K of memory, giving you the power to lay out your data exactly the way you want it by letting you vary the size of any individual cell or group of cells.

Numbers Up runs on any IBM PC, XT, AT, or PS/2 or true compatible with a minimum of 256K RAM and a single disk drive (5.25" or 3.5"). Most dot matrix and laser printers are supported.

£49.99 inc VAT

Secretary Bird

The Secretary Bird is probably the easiest, most intuitive integrated package there is! In addition to the features below, you can also move data between modules, and even access DOS commands from within the programme.

The Secretary Bird runs on any IBM PC, XT, AT, or PS/2 or true compatible with DOS 2.0 or above, a minum of 512K RAM and one disk drive (5.25" or 3.5"). Most dot matrix and laser printers are supported.

Zing

Zing is an add-on graphics enhancement tool for the creation of three-dimensional art, text, and presentation graphics which will appeal to a wide audience of desktop publishers, presenters, and graphic artists. It would also form a useful addition to computer-based graphic design courses.

Zing runs under Microsoft Windows (runtime version supplied) on any IBM PC, XT, AT, PS/2 or compatible with DOS 3.0 or above, at least 512K RAM and two disk drives; most laser, inkjet and dot matrix printers are supported.

£149.99 + VAT

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EZ-Formslite .... (2)	Treeview.....UT (1)	LQ2.....PE (2)
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Currently over 800 disks in our catalogue, including Fred Fish, APDC, AMICUS, PanoramA etc. Our own SOF collection is so good other libraries stock them now and of course we are exclusive distributors of the fabulous UGA disks. All are auto-boot, menu driven and so very easy to use, probably the best collection available! We also run an Amiga Club, ask for details.

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AMIGA

● PROTEXT

£99.95 • Arnor • 0733 68909

For sheer text and file handling Protext is the best Amiga text processor. It's fast, flexible and full of features; good spell checker and mail merge facilities so powerful you can write program-like text and file handling routines. For writers and journos this is a must. Odd on the Amiga as it doesn't▼ use windows – it's really a powerful keyboard-driven text editor.

▲ Fast
▲ Spell checker
▲ Powerful mail merger
▲ Powerful macros
▲ Loads of extras – calculator, word counter. memory editor etc
▲ Two file editing

▼ Restricted WYSIWYG
▼ No windows
▼ Command driven – no menus

VALUE FOR MONEY ★★★★

● KIND WORDS 2

£49.95 • Amiga Centre Scotland • 031 557 4242

A good value budget word processor with spell checker and import of graphics. New version has thesaurus and British dictionary. New fonts and a few extra features included too.

▲ Good standard word processor
▲ Spell checker
▲ Mail merger
▲ Graphic import

▼ Best for occasional user – no sophisticated layouts etc

VALUE FOR MONEY ★★★★

● EXCELLENCE

£154 • Micro Systems (US) • 0101 407 7900770

Does everything WordPerfect does and more (see PC section) – checks your spelling as you type, imports graphics, checks your grammar and offers suggested improvements. For the really serious writer.

▲ Graphics import
▲ Spell checking as you type
▲ Mail merging
▲ Grammar checker
▲ Contents/ index/ footnote generation
▲ And everything else

▼ Expensive – can you get what you need cheaper?

VALUE FOR MONEY ★★★★★

PCW

● LOCOSCRIPT 2

£25 • Locomotive • 0306 740606

If you like LocoScript 1 (which 8256 and 8512 owners get free) you'll love LocoScript 2 (which 9512 owners get free). Faster than version 1 (but still slow) it can jump to a specified page instead of scrolling through, supports Cyrillic, Greek and mathematical symbols, works with any printer in the world, lets you design up to 16 characters yourself, and offers a range of add-on fonts for the printer. There's even a database add-on available separately, LocoFile.

▲ Faster than version 1
▲ Unrivalled printer support
▲ Can make 16 characters to your design
▲ Greek, Cyrillic, mathematical symbols
▲ Extra fonts available
▲ Database available

▼ No word counter
▼ Still very slow
▼ Can't exchange printer codes

VALUE FOR MONEY ★★★★★

● PROTEXT

£59.95 • Arnor • 0733 68909

For sheer text and file handling Protext beats everything else on the PCW hand down. It's fast, flexible and full of features; good spell checker and mail merge facilities so powerful you can write program-like text and file handling routines. For writers and journos this is a must. The word counter is invaluable and block moves are so fast you'll wonder how you ever survived on LocoScript.

▲ Breathtakingly fast
▲ Spell checker
▲ Powerful mail merger
▲ Powerful macros
▲ Loads of extras – calculator, word counter, two column printing etc
▲ Two file editing
▲ Vital if you use any other CP/M programs (database/ spreadsheet etc)

▼ Not good at handling complex layouts

VALUE FOR MONEY ★★★★★

● MINI OFFICE

£30 • Database • 0625 878888

A five-in-one package, the word processing module doesn't quite rival LocoScript or Protext, but is nevertheless a full-featured and very useful program. And of course you get a database, spreadsheet, comms and graphics module as well. Whatever you do don't buy the more expensive Mini Office Professional Plus, which boasts a spell checker and thesaurus: they're both very disappointing.

▲ Fast, full-featured word processor
▲ Very fast word counter
▲ Exotic features – auto Roman numeral page numbering, reversed out printing, double height characters
▲ Mail merge
▲ Database, spreadsheet, graphics and comms utilities included

▼ No accents or foreign characters
▼ No phrase facility
▼ Curiously flimsy feel
▼ No interchange of data possible between spreadsheet/ graphics/ word processor

VALUE FOR MONEY ★★★★

● NEWWORD

£70 • NewStar Software • 0245 265017

Very like WordStar but only ideal if you or those who will use the PCW were trained on that and can't manage anything else. Just possible some businesses would find it useful though not for the individual.

▲ Full featured word processor simi-

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lar to WordStar
▲ Range of add-ons available at extra cost: database, label printer, report generator etc
▲ Very flexible and powerful

▼ Not as good as LocoScript or Protext

VALUE FOR MONEY ★★

CPC

● PROTEXT

£19.95 tape, £26.95 disk, £39.95 ROM • Arnor • 0733 68909

For sheer text and file handling Protext stands out. It's fast, flexible and full of features; good spell checker and mail merge facilities so powerful you can write program-like text and file handling routines. Get the ROM version – it's a delight to use.

▲ Fast
▲ Spell checker
▲ Powerful mail merger
▲ Powerful macros
▲ Loads of extras – calculator, word counter etc
▲ Two file editing

▼ Maximum 22K file size on disk, 38K on ROM
▼ Not good at handling complex layouts

VALUE FOR MONEY ★★★★★

● MINI OFFICE

£14.95 tape, £19.95 disk • Database • 0625 878888

Not a full featured word processor but nevertheless a very useful program. Fine for occasional use – letters, the odd essay or article and so on. You get a database, spreadsheet, comms module and graphics utility free but they don't work with the word processor.

▲ Good basic word processor
▲ Database, spreadsheet, graphics and comms utilities included

▼ No interchange of data possible between spreadsheet/ graphics/ word processor
▼ Not as powerful as Protext

VALUE FOR MONEY ★★★

● TASWORD

£19.95 tape, £24.95 disk • Tasman Software • 0532 438301

Special versions for 464, 464D (using disk drive) and 6128 which uses the extra memory to best effect. Latter pair include mail merger. Easy to get to know and comprehensive help screens. Screen operations slow but can be customised for greatest speed.

▲ Good printer control handling
▲ Easy to use
▲ Simple mail merger
▲ Good help screens

▼ Can be a bit slow

VALUE FOR MONEY ★★★★★

● BRUNWORD

£30 (6128 disk) £25 (464 disk) • Brunning Software • 0245 252854

Complete package: word processor, spell checker which loads into the extra memory, and card filing program. 40, 80 and 128 column modes and fast screen response. Easy to learn and good value – possibly this has the edge over Tasword as the best CPC wp after Protext.

▲ Fast screen response
▲ Spell checker with 30,000 dictionary included
▲ Card filer included

VALUE FOR MONEY ★★★★★

C64

● EASY SCRIPT

£50 • mail order houses

Highly regarded word processor, but no longer in production; you'll have to try the mail order places. Get this if you can't get PaperClip

▲ Easy to use and well featured

▼ 40 column only

VALUE FOR MONEY ★★★★

● PAPERCLIP

£50 • mail order houses

In many people's minds, the best of the 8-bit word processors around. Again, you'll have to phone round mail order places to get hold of one, but it'll be well worth it.

▲ Two documents open simultaneously in widows
▲ 40 or 80 column modes
▲ Spell checker
▲ Macros facility

▼ Difficult to find!

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● TASWORD

£13.90 48K, £19.95 Plus 2, £24.95 Plus 3 • Tasman Software • 0532 438301

Special versions for each machine. Easy to get to know and comprehensive help screens. Screen operations slow but can be customised for greatest speed. A versatile and well featured program. The only real word processing option for Speccy owners.

▲ Good printer control handling
▲ Easy to use
▲ Simple mail merger
▲ Good help screens

VALUE FOR MONEY ★★★★★

BEEB

● WORDWISE PLUS

£56.35 • Computer Concepts • 0442 63933

One of the first word processors on the Beeb. Only works in 40 column (with an 80 column preview) but does everything very quickly and intuitively. Can slap print control codes in the middle of a document and hence control any printer if you're prepared to dirty your hands with the manual. Macros also can be set up. Also available on ROM.

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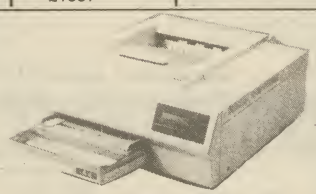

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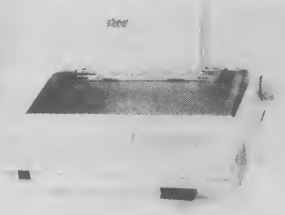

Speed:	170 cps draft elite 57 cps LQ Elite	CHARACTER SET:
Slewrate:	21 Lines per second (3.4" PS)	ASCII, International, italic and IBM in both draft and LQ.
LQ Matrix:	24 x 35	1 x draft font; 8 x LQ fonts: Courier, Courier italic, Prestige, Prestige italic, Orator, Orator italic, Script, Script italic. 3 x print variations: Outline, shadow, Shadowed outline. 50 downloadable characters (expandable to 221 with 32K RAM
Graphics Resolution:	360 DPI	
Printing:	Bi-directional logic (short line) seeking	
Number of Pins:	24	
Interface:	Parallel. IBM Proprinter X24, Pro II, Proprinter, Epson LQ800, LQ1500	
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▲ Fast and easy to use
▲ Good graphics capabilities
▲ Good spell checker
▲ Multi column printing
▲ Good display

▼ Keystroke sequences get tedious
▼ Have to save files before printing

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● TEXT 87
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▲ Good powerful word processor
▲ Multi column
▲ Much faster than Quill
▲ Good range of fonts

▼ A bit complex to use

VALUE FORMONEY ★★★★

ATARI 8 BIT

● ATARIWRITER
£37.95 • mail order houses
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▲ Spell checker
▲ Two column printing
▲ Two document editing
▲ Good block handling

● PAPERCLIP
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In many people's minds, the best of the 8-bit word processors around. Again you'll have to phone round mail order places to get hold of one, but it'll be well worth it.

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▲ 40 or 80 column modes
▲ Spell checker
▲ Macros facility

▼ Difficult to find!

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PC2286 DD	915	1055	1149
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XENi-1386/50	47MB	2MB	16	2775	2985
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DESKPRO 386/25 MODEL 110
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OPUS			
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PC3 HD	30MB	1MB	10
PC4 286	20MB	1MB	12
PC5 286	30MB	1MB	10
PC5 286	40MB	1MB	10
PC5 386	40MB	1MB	20
PC6 286	60MB	1MB	12
PC7 386	70MB	4MB	20

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	RAM	MHZ
TANDON		
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PCA40 PLUS	IMB	10
PCA1.2 PLUS	IMB	10
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PCA/12SL40	640K	12
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386/20 40	IMB	20
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PC4641	40MB	640K	10MHZ	1639
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	CPU	DISK	RAM	
TOSHIBA				
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	DISK	RAM	MHZ	
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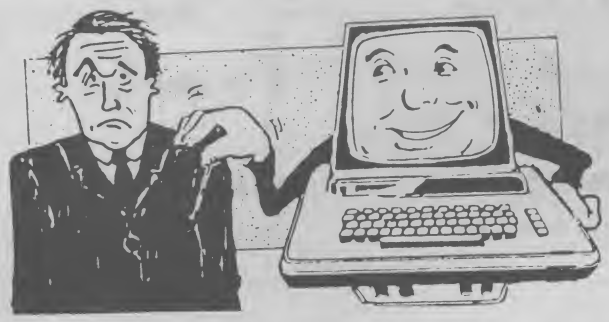

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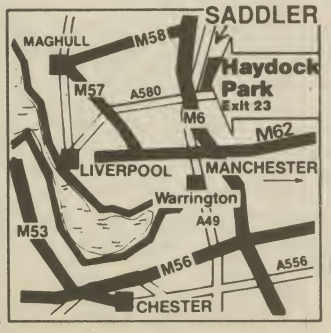

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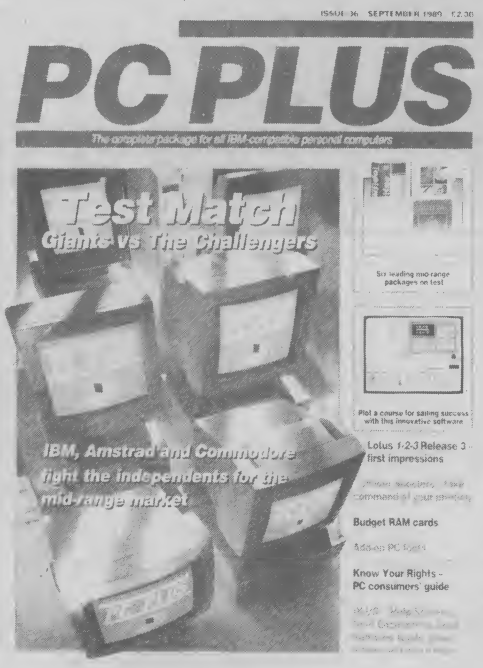
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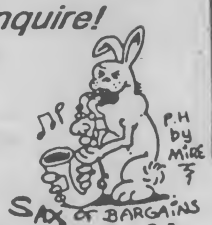

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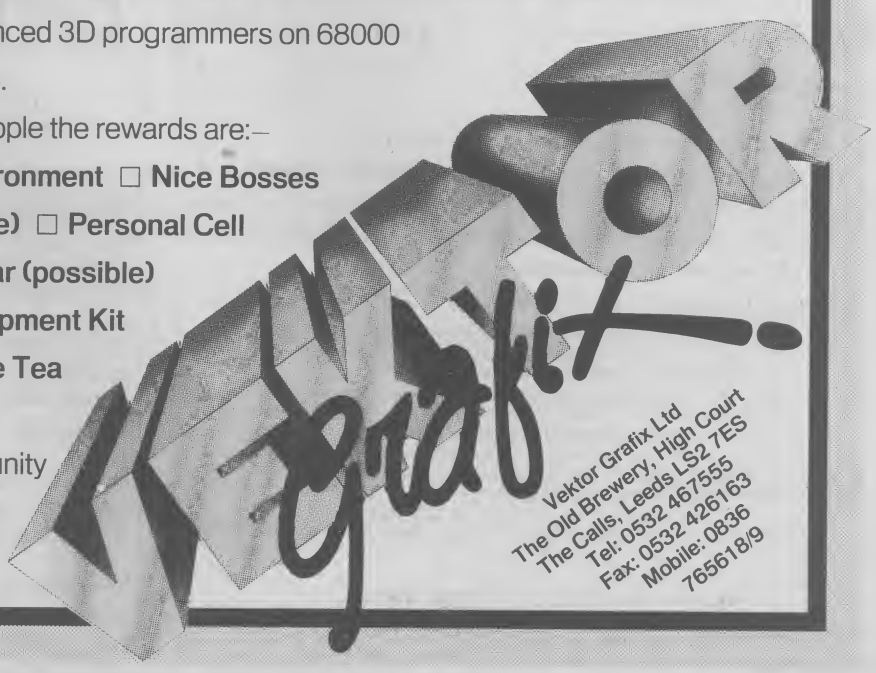

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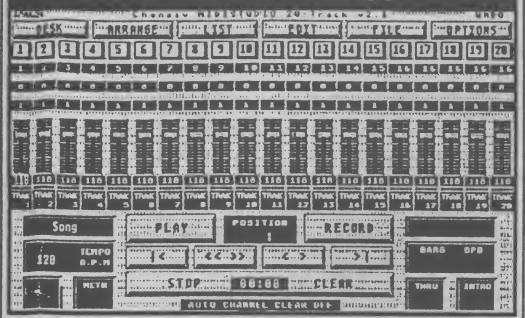

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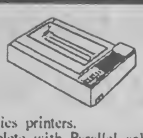

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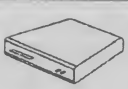

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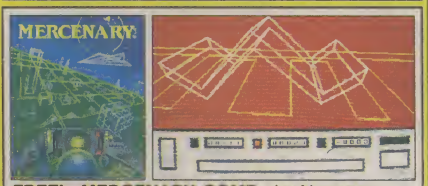

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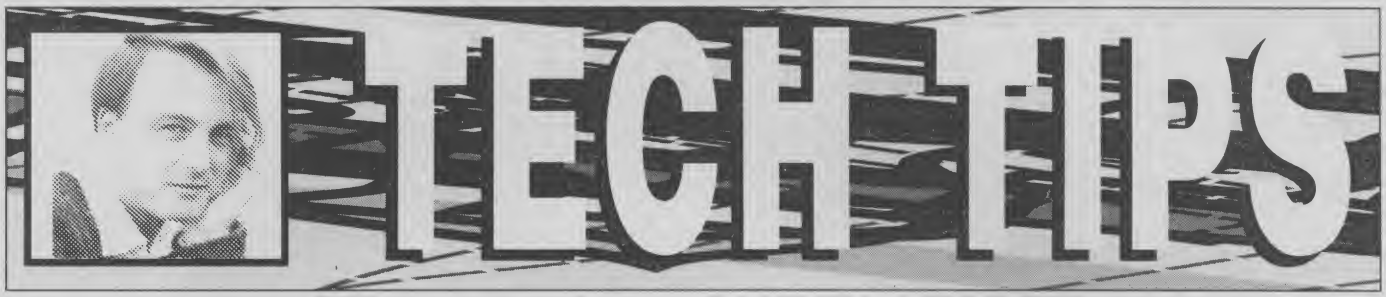
Do you already own a computer
If so, which one do you own?



Personal computer problems? Express' Agony column has the answer. Write in strictest confidence to Uncle Techtip.

The best tips win a freebie – so don't forget to tell us your address and machine

HELP!
Coin-op cavortings

I am very interested in purchasing a standard *Street Fighter* coin-op. But also I have next to no information on how much it will cost or where I can obtain one. So I was wondering with you being the most informative magazine around, whether or not you could give some information on where I can get one and how much it will cost.
J. Payne, Leyton, London.

• Rik Haynes replies: A quick butcher's at the coin-op industry trade rag *Coin Slot*, revealed not one *Street Fighter* PCB for sale anywhere. I can only deduce that the arcade machine's pressure pad controls offer some form of sales restriction. Sorry pal, who knows where you'll get it from...

TIP
Seeing the light

Having just purchased *C-Light* for the Amiga and getting fed up waiting 9 to 10 hours for my first (simple) picture, I realised something that may prove handy to other frustrated owners, who are fed up leaving their machines on all night for one picture.

In order to be able to render two pictures at once, just follow these instructions. Unfortunately, this can only be done if you have 1Mb or more of memory.

Simply double-click on the C-LightII icon to open its window, load up your picture and make sure the menu bar gadget is set to ON, before clicking on the GO! gadget to start your first picture rendering. Get back to the Workbench screen by clicking on the back gadget on the title bar. Then open up C-LightII again so that you then have two independent version running at once and then repeat the above instructions to load and then start your second picture rendering at the same time. Go away and wait, wait, wait, go to bed, have a cup of coffee, sleep, get up etc., and by this time if you're lucky, you should now have two pictures which hopefully makes up for the waiting.
M. Bruce, West Croydon, Surrey.

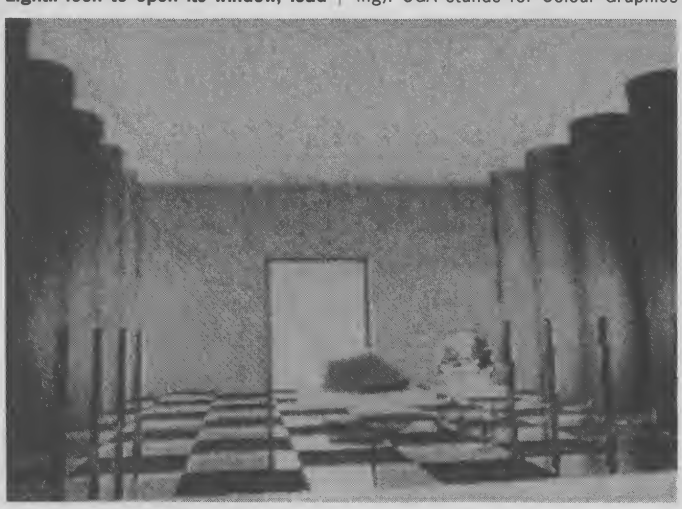
TIP
Quazatron revisited

1. I read Geoff Winkles (*Express* 40) and I think the game he is after is *Quazatron* from Hewson. If he has trouble finding it, I will give him my copy *(it's that bad, is it? – Uncle Techtip).*

2. Also could you please tell me what CGA, EGA and VGA stand for?
David Osborn, 14, Birch Avenue, Knypersley, Biddulph, Staffs ST8 6NY.

• 1. Well Geoff-baby, an offer you can't refuse.

2. No. (take a look at Techtips, *Express* 42 wherein you'll discover a veritable wealth of information relative to IBM PCs and their screen adapters). Oh, go on then (says Uncle Techtip, relenting). CGA stands for Colour Graphics Adapter, EGA Enhanced Graphics Adapter and VGA Video Graphics Array. For a fuller explanation of each standard send the amazingly expensive sum of 78p to Express Back Issues, The Old Barn, Somerton, Somerset requesting the copy mention above and you'll receive it by return of post (or within a year, whichever is the sooner)



• *C-light*: takes hours but why not do two at once?

HELP!
Atari upgrade

Would it be possible for you to answer the following questions about the Atari 520STFM?

1. I wish to expand my Atari up to 1Mb or above. I would like it if you could explain how I could do this myself, buying the chips, boards and fitting myself?

2. Can I use American public domain software on my ST? I have a source in the States so I hope to buy direct. would it be possible?

3. I wish to use a 5.25-inch disk drive on my ST. I would like to use a second hand drive as cash is tight being a student. Could I use any type of drive? Could I use a Microplus 5.25-inch?
D. Edwards, Cannock, Staffs.

• 1. Upgrading the memory of the ST is a simple matter of opening the case and plugging 16 DRAMs into the empty sockets on the motherboard. The only difficulty associated with this is in obtaining the DRAMs – they're still pretty thin on the ground. Call Ladbroke Computing on 0772 203166. The company regularly advertises memory upgrade kits for STs.

2. Yes. American public domain software will work perfectly with your UK Atari ST.

3. You can use any type of IBM-compatible 5.25-inch drive i.e. go out and buy a second hand IBM PC drive, obtain a cable from Cumana on 0483 503121, connect it to your ST and Bob's your Aunty's live-in lover – the ST has a 5.25-inch drive.

HELP!
Mastering sound

Can I connect the cartridge from the *MasterSound* to an ordinary hi-fi system via the headphone socket, or are the voltages too high?

If you want to get 15% more samples on *Master Sound*, sample at 15KHz, then squeeze the data to 7.5KHz. Although the sequencer works at 10KHz, approximately the same speed as normal can be achieved by pressing '2' when recording a sequence.
Paul (Shane) Fenton, York.

• You can connect the *MasterSound* sampling cartridge to any standard hi-fi, ghetto blaster, Woolworths-brand toy record player etc., without any problems.

HELP!
Beebamiga

I am considering buying a BBC emulator for my Amiga A500. Could you tell me how effective it is? Does it emulate just BBC BASIC or the Beeb

BUG OF THE WEEK

Amiga crashes shock

I wonder if any of your readers have had any or the same problems which I have encountered with Microprose's *Gunship* for the Amiga. On returning from a mission and entering the codeword the simulation would crash with the message "Software task held". On returning my disk to Microprose I was told that this was a common bug and that they had had a few returned.

In the end it took four weeks to get my disk back – not that I was in any hurry for it as I thought the simulation rather dismal compared to its Commodore 64 cousin. The graphics are clearer, but that could be due to the monitor, and the sound leaves a little to be desired.
S Judd, London SE11

• Seems to be happening quite a bit this 16-bit version is worse than the eight-bit lark.

• *Accessus accessus*
Lives as a background task in multi-tasking machines. Particularly fond of the Amiga due to its plentiful supply of unprotected RAM

in its entirety? If the latter, could I load in the emulator and (provided I had a 5.25-inch disk drive connected) load up my trusty Beeb *Elite* or some such thing?

I am also concerned about the speed involved. If all programs run at seven times the normal speed, then surely won't this make any BBC games I have completely unplayable?

Giles Griffith, Wakefield, Yorks.

• The Amiga BBC emulator will only run programs written in BBC BASIC. It does not attempt to provide Amiga owners with a BBC B machine (although I agree it would be vast improvement). The emulator will run all 'well behaved' BBC BASIC programs at approximately seven times the speed of the original machine.

HELP!
ST vs. PC

I have a few questions for you.

1. Which would you recommend of the Atari ST and Sinclair PC200? I want the machine for games, graphics, music and a bit of word processing.

2. Could I connect a Cheetah MK5 keyboard to either of these?

3. Does CP/M exist for either of these?

4. Is the Atari SM124 a good buy?

5. Could I connect a 5.25-inch 360K IBM-compatible disk drive to either of these?

Now for a bug. I have found an interesting bug in *Robocop* on the Spectrum +3. On level 3 I reached the end of the level with no ammunition. I walked back to the other end of the level. On the way back I was invincible to all the attacks. I also could not go back to the end of the level from where I had come. When I reached the start of the level I started walking back to the end, then I walked through a computer shop and onto level 4.

Michael Emmens, Oldham, Lancs.

• The P200: 'a dodo' – Uncle Techtip

• 1. The Atari ST is a versatile, fast machine that has not only a large range of quality leisure software available but some excellent business applications such as word processors, databases, spreadsheets, DTP packages etc., is cheap and expandable and, when compared to the PC200, has very good sound facilities. The PC200 is a dodo. I recommend the former.

2. With the electronics know-how and the correct tools, you can connect anything to anything, if you doubt this, then go along to any alternative micro show where you'll see machines such as the QL, TI99/4a, and Colour Genie connected to a whole host of peripherals not originally intended for the machines. However, adding non-standard bits and pieces is tricky affair which doesn't always expand the capabilities of your computer.

3. With every Atari ST purchased, you get a set of public domain disks as an introduction to what's available for the ST. Two of these disks constitute a CP/M emulator for the ST. It's fast and comprehensive, easy to use and free. I don't know of any CP/M emulator for the PC200.

4. The Atari SM124 monochrome monitor is generally reckoned to be one the best paper-white mono monitors available in the market place today. It isn't cheap at just over £100, but then quality products are always a little more expensive.

5. The PC200, being a PC compatible machine, would allow you to connect a 5.25 inch drive but the operation would require a certain amount of tinkering as the computer is not designed to be expandable. The Atari ST, although not a PC compatible, does use exactly the same standard drives as the PC and so connection of these (both 3.5 and 5.25 inch) is no problem.

• Database's Fun School series are top sellers in the education market

• The ST offers a number of COBOLs

HELP!
Learning by numbers

I'm a primary school teacher who regularly takes her Atari ST into the classroom. The children really seem to enjoy interacting with the machine and their enthusiasm knows no bounds. So after several months of this I decided that it might be a good idea if I could write some educational programs of that may help in the learning of spelling, grammar, basic mathematics etc. I wrote several programs in ST BASIC which, although quite popular with the kids, didn't exactly set new standards for sound and colourful graphics. In order to rectify this situation I decided to look for some professionally produced software, but I'm afraid I haven't had much luck. All of the computer shops in my area are without any kind of learning packages and merely cater to the games players. So I was wondering if you could help me in my search for some good educational software. I – and Class 3b – would be very grateful to our dear Uncle Techtip.

Penny Goodwin, Dalyton Village, Lancashire.

• It's very difficult to find good quality educational software. Programming houses pander to the applications areas in which they can make money i.e. games, business software etc. There are some very good teaching programs available, you just have to find them. One of the best packages on the market is from Database Educational Software and is a series of programs covering many themes under the title *Fun School*. The software covers all primary school ages and includes the traditional subjects presented in a new, novel and effective way (the programs even managed to oust games programs from the 'best seller' charts for a while). For a full list of what's available, contact Database Educational Software at Europa House, Adlington Park, adlington, Macclesfield SK10 4NP.

You could also try looking in the public domain. Market forces do not dictate the themes for software writers and consequently, there is a large amount of teaching programs. Some good, some bad so you'll have to sort through a large amount before getting anything really useful.

And the next issue of *Express* contains the definitive guide to educational software, courses etc.

HELP!
Business programming

After a couple of years of playing games and programming in BASIC on my Atari ST the novelty was beginning to wear thin and I was getting fed up with my computer. So to re-kindle my flagging interest I have decided to try to write some business software such as databases etc., and sell it to local businesses (I already have some contacts in the area where I live). I have considered a number of languages including C, Pascal, BASIC etc., and have decided that I'm going to write in COBOL because if I do manage to sell my work then it will be easier to get a proper programming job if I have been programming in COBOL, which is my ultimate aim. What I want to know is, is there a version of COBOL available for the Atari ST? I believe that there are some cut-down versions in the public domain, but obviously these would not fill my requirements. I need a professional version of the language which will be compatible with other business programs. Can you help?

G. Archer, Kings Cross, London.

• The Atari ST has several COBOL compilers available although as you say the majority are cut down versions of the language. There is however, one quality, professional package, and that is available from well-known language provider HiSoft. Contact HiSoft on 0525 718181. The compiler costs around £40, is fully featured and a very good buy. Goodbye.

AMIGA BLITZ

1.4 Latest

After a period of deadly silence, a unbelievable large amount of information is finally starting to flood through to the ears of the average user concerning the next major operating system update, version 1.4 of Kickstart and Workbench.

At the recent Developers' Conference held in San Francisco, Commodore unveiled its plans concerning its most ambitious upgrade yet. Already alpha test versions of the new OS are in the hands of several major UK software developers, and from what I've already seen of the new OS, 1.4 is going to revolutionise your Amiga.

The first, and most major difference between 1.4 and other releases will be immediately apparent as soon as you boot you Amiga. According to sources close to Commodore in the States, the company have hired an artist to totally redesign the look of the Workbench to give it a more professional look.

Commodore seem to have learnt a lot of lessons from the success of the Macintosh windowing environment, as many enhancements give the Amiga Workbench a more Mac-like feel. Firstly, no longer will files be hidden from Workbench users just because they don't have icons, with 1.4 you'll also be able to view the complete contents of a disk as a list of filenames in a text window.

Also just like the Mac, 1.4 will include standardised system requesters for carrying out such tasks as file i/o, which should help to make the Amiga easier to master for beginners. Check out next week's column for even more juicy info about 1.4!

Uridium To Reach The Amiga?

Anyone who owned a Commodore 64 before upgrading to an Amiga will instantly recognise the name of Andrew Braybrook. Andrew was responsible for a string of hits on the 64 such as *Gribbly's Day Out* (remember that one!), *Paradroid* and of course the infamous *Uridium*.

Andrew is currently in the process of putting the finishing touches to his conversion of the Taito coin-op, Rainbow Islands, but he has still found time to start work on ST and Amiga versions of one of my favourite 64 games, *Paradroid*. For those of you who have not played the game, you basically control a small remote droid that has to destroy a large space ship by destroying the crew of robots. The game is played from a bird's eye view and features some very effective bass relief graphics.

The conversation soon got around to the question that Andrew has probably been asked a million times before – 'Will there be an Amiga version of *Uridium*?'. Well, I'm glad to report that the game is in the pipeline but Andrew himself will not be working on it. 'If I was to write *Uridium*, I would upgrade to to true 16 bit standard. It would probably only run on an Amiga.' Andrew replied.

Whether *Uridium* ever reaches the streets very much depends on the success of *Paradroid*. If *Paradroid* sells well (which I hope it does – it's a fine game), then *Uridium* is more than a distinct possibility.

Yet another Abacus book!

It seems that not a single week passes us by without that prolific publisher of Amiga specific book, Abacus, releasing yet another title for our beloved machine.

The latest addition to their already bulging catalogue is *Amiga Graphics Inside & Out*, which provides a complete insight into the workings of the Amiga's powerful graphics system. The book covers such areas as View structures, ViewPorts, RastPorts, screens, windows and a lot more besides.

Whether you're an AmigaBASIC hacker or an assembler mastermind, *Amiga Graphics Inside & Out* includes a section for your particular language. Areas covered include HAM mode (including source to access it from BASIC), Super Bitmaps, blitter objects and Copper programming.

Yet another digitiser!

It must have been the hot weather! For some unknown reason, the Amiga video digitiser market has suddenly be flooded with a large number of new releases.

First there was Vidi, now from Power Computing comes Videon, a full colour digitiser. Videon is a powerful software/hardware combination that allows you to digitise images from any colour video source without having to purchase a separate RGB splitter. Videon employs digital filtering to allow the most detailed grabs possible.

Using a special bypass system, Videon allows you to view both the source video signal and the final grab on screen simultaneously, therefore avoiding the need for constant swapping of leads. Screen resolutions supported include high, medium and low in both standard or overscan mode.

• A sample of the impressive results possible with Videon

Arnor take on database market

Arnor software, the makers of the highly acclaimed (but highly bugged) word processor *Protext*, have announced the impending release of *ProData*, a database management system for the Amiga.

ProData is available on several systems and therefore (like *Protext*) provides complete data compatibility between the various makes of computer. You could for example, create your database on a PC, add records on an ST and then use the finished system on an Amiga. Among *ProData*'s list of facilities are record filtering, password protection, macros, foreign language compatibility, file management and others.

Jason Holborn

ST

Yet more power

This week FAST Technology announced the release of a new accelerator board for the ST. This is just weeks after *Hypercache*, Third Coast's own speed-up board, came onto the market.

The *Turbo 16* incorporates a 16MHz CMOS 68000 CPU just like the *Hypercache* but the big difference between the two is *Turbo*'s 32K memory cache.

Hypercache only included 8K of memory which meant that just 8K of instructions could be loaded into the cache at once. Consequently, if a program loop or subroutine was more than 8K in length then the entire routine could not be loaded into the cache so the full benefits of a 16MHz expansion could not be realised. *Turbo*'s 32K buffer will mean that four times more space can accommodate instructions and the 16MHz chip will be used more efficiently. This would make speed increases of up to 100% far more likely although FAST say that increases from 60% up are typical.

The *Turbo 16* will fit all STs by removing the CPU and replacing it with *Turbo 16* which then connects directly to the internal 16MHz clock. The *Turbo 16* will cost £299 – twice the price of *Hypercache*.

▪ FAST can be contacted on 0734 784933.

SEUCK it to 'em

After releasing the Amiga version of *SEUCK* earlier this year, Palace is now crowing about the fact that the ST version of *SEUCK* is coming up for release.

SEUCK (Shoot-'Em-Up Construction Kit) is a game designer which lets you create your own shoot-'em-ups. With features allowing you to design your own sprites, dictate explosion effects, vertically-scrolling speeds and a vast number of other possibilties you can design all sorts of aliens and create a thoroughly good game without ever seeing a piece of code. Once you've tested your masterpiece and are happy with the way it looks and responds, *SEUCK* allow you to save the shoot-'em-up as a stand-alone program which can even be marketed if you wish.

The Cambridge-based Sensible Software came up with the original *SEUCK* concept but since they weren't used to programming the ST and Amiga, coding went out of house.

Palace's Pete Stone promises that the new ST version will be an improvement on the Amiga one now that they have had time to reassess the project. One side of *SEUCK* which looks particularly exciting is the sound. Richard Joseph has been brought into *SEUCK* specifically to concentrate on the spot effects.

The release date is sketchy but Palace are promising that it will be out before Christmas, retailing for £25.

▪ Palace can be contacted on 01-837 7032

Upgrades don't fit

For some time now Third Coast having been making a song and dance about the way that their new RAM upgrades will fit any ST without difficulty. The instruction manual which comes with the upgrade unit even reiterates this fact. However, this week I tried fitting a 1Mb expansion into a 520 ST as described in the manual only to find that certain 520s will not accept the upgrade board.

The RAMs are supposed to fit into the memory management unit (MMU) with the pins from the board slotting down the sides of those in the MMU. However, certain 520's contain surface-mounted MMU's which have been soldered directly into the main board so there is no space to accomodate the RAM upgrade.

Third Coast now admit that certain 520s cannot be upgraded but they're promising a full refund for anyone unable to fit the board.

Headline
HEADLINE Font (American) Typewriter Pic Size 120×150

headline
HEADLINE Font Oxford Pic Size 150×150

HEADLINE
HEADLINE Font Helvetic-Outline Pic Size 240×240

HEAD LINE
HEADLINE Font Century Pic Size 150×180

Headline
HEADLINE Font Brush Pic Size 150×150

• Loads of new fonts are possible with *Headline*

Headline news

ST font packages are fairly thin on the ground and designing your own might be remedy to the problem but coming up the entire range of upper and lower case characters is not exactly appealing. Gate Seven Computers have tried to resolve the problem by releasing *Headline* – a piece of software which works like Letraset in that it allows you to load up to four fonts into memory at once and paste them down onto a blank screen. The result can then be saved onto disk in a variety of formats and loaded into art or DTP packages so that a wide variety of headlines can be created.

Having spent a while playing with *Headline*, I can see that it could hold enormous possibilities for anyone interested in producing letterheads or other special text effects. There are lots of fonts contained on the *Headline* disk and these give you access to a vast range of interesting styles which I've never seen in any ST DTP package.

To use *Headline* you first choose which fonts you want to load into memory and then you're presented with a blank screen. Typing on this screen produces text in the selected font, alternatively you can import ASCII files and convert them to different fonts. All the fonts provided have very large point-sizes so that they may be reduced from within other packages without losing quality, or printed at 100% for perfect headlines.

The program is particularly suited for use with *Signum 2* since it displays text rulers using the same parameters as *Signum* and it formats text to fit directly into Signum documents using any user-defined magnification.

Headline is a German package, distributed in the UK by Gate Seven Computers. There are six fonts provided in the basic package which costs £49.95 while another 50 fonts are available on two DS disks at £20 each.

Gate Seven can be contacted on 01-602 5186.

Kim Harmaugh

PC UPDATE

SoftKick off

Anyone using *Ventura Publisher* and spending all their time scrolling round the screen with the scroll bars, will notice the difference in speed and ease of use *SoftKicker* provides. This is a nifty little program which fools *Ventura* into thinking it is working with an ultra-high resolution monitor of 1024 x 1024 pixels. This is the kind of resolution provided by the full A3 DTP monitors which can cost up to £1500.

What *SoftKicker* does is to map an area of the high resolution 'screen' onto an EGA or VGA monitor. As you move your pointer to the edges of the *Ventura* screen so the screen scrolls to another part of the page. The scroll bars are a thing of the past on a VGA screen and only occasionally needed on EGA. As a bonus, you can switch from an actual size view to a full page view. In this mode a small magnifying box appears on the left-hand side of the screen and follows the pointer to show whatever you're looking at at full resolution. The product costs £69.95 plus VAT and can be had from the Ctrl Alt Deli (0908) 662759.

Canon printer

While on about DTP, a subject I find it hard to leave for long *(I've noticed - Ed)*, Canon are about to release a new laser printer onto the market. Nothing remarkable in that, from the company that makes 80% of all the laser engines in the world. No, but it's obviously necessary to revamp the standard 300DPI, eight page per minute laser printer that they've been selling for the last *n* years. They could increase the resolution, they could increase the speed, but both these option cost money.

Instead they've taken the software approach, which may or may not prove a winner. The new Canon LBP-8 Mark III printer offers the same speed and resolution as previous models, but comes as standard with 1.5Mb of memory and rescalable fonts - a la PostScript, but fast. It can also print them at odd angles. All it needs now is some software support from important packages. And with the muscle of Canon, it'll probably get that.

What is odd, though, or perhaps not when you think of the economics, is the hard disks attached to this kit. What is the point of a fast 8086 processor, a hunky high-res screen with a decent graphics card on it, with both strapped to an 80 ms, 70kbaud hard disk. With this configuration just about everything you do has to wait for the hard disk to catch up. I guess it's still a question of hard disks costing more, but there must be a few cats getting fat on the mismatch.

Fat cats to FastLynx

In the same CAD goody bag as *SoftKicker* was *FastLynx*, a program transfer system. Yes, this is certainly a serial link along the lines of *LapLink*, but it's a lot more sexy. For a start, the program comes with two custom-made leads. The first is a multi-headed serial lead which will connect to either type of PC socketry. The second is a parallel lead.

It's not widely known that yer average Centronics parallel printer port actually has the ability to receive data as well as to send it. I'm led to believe this is something to do with the remains of an old mainframe communications protocol. The outcome is that connected to two parallel printer ports, *FastLynx* can transfer data at up to 500,000 baud - and that's shifting. It's so fast that it's been known to display the message 'Waiting for hard disk write' when transferring files.

Also included with *FastLynx* is a utility to let you run a slave PC's disks from a host machine. This has been done before with a program called *Brooklyn Bridge*, but not through a printer cable, and not at 500,000 baud! £125 plus VAT for this one.

Psion laptop

A recent report in the trade journal *Micro-Scope* pulled some interesting facts out of the hat about Psion's rumoured new range of laptops. It appears the company is to release a range of A4 machines, some compatible with their existing Organiser hand-held micros, and others running MS-DOS. The screens don't seem to be a highlight of the design, but the portables are intended to have battery life of several months and to have storage in 'flash' EPROM.

Flash EPROM takes the form of memory chips which can be written to like any other Programmable Read Only Memory. Unlike these chips, however, it can be erased with electrical signals rather than having to be exposed to ultra-violet light for several minutes. This in effect removes the need for battery-backed storage or disk drives in the Psion machine, which should drastically reduce its power needs.

The new machines are due for volume production in the autumn, which presumably means a launch at the PC Show in September.

• Canon's new super-smart printer

Animator

Remember that I couldn't run AutoDesk's *Animator* demo last week? Well, I've now had a chance to look at the video on a friend's machine and it is very impressive. One of those that might be entered for the awards that *Smarties* won a few years back. The company claims the whole thing was produced with *Animator*. Very impressive, but I guess they used a few extra bits of equipment as well, like a professional video suite, cartoonists, a mixing bank, sound studio...

Simon Williams

Speed disparities in XTs

I've been doing a multi-test on XT recently, and there are some very nice little 8086-based machines around now. Several manufacturers have been merrily bumping up the speed of their offerings - 12MHz is by no means uncommon - and most hum along with EGA or VGA screens into the bargain.

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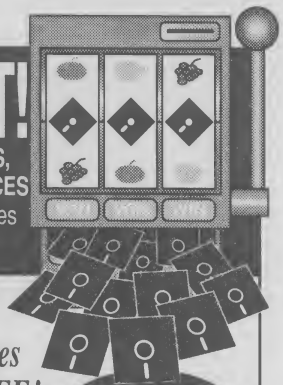

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A way with words?

Two new utilities for the CPC both aim to assist you with your letters, in one way or another.

Have you ever found yourself lost for words, unable quite to summon the exact one you have on the tip of your tongue? Me too. So I was very interested to see that Siren Software has brought out *Keyword*, described as "a dynamic word finder for home and business use." It is said to have been written by a professional journalist for his own use, "and therefore has been designed to be as simple to use in the shortest time possible" (rather a slur on the intelligence of journos if you ask me – but perhaps justified!).

You install *Keyword* as an RSX which you can call up at any time simply by typing `|KW`. Then you enter a word similar to the one you think you're looking for, and you're into a kind of instant access thesaurus. Think of it as looking at the index of a book thesaurus, but without then having to search for "461n."

The problem with the program as it currently stands is that it contains 10,000 words. Now that may sound a lot, but believe me it's far fewer than even the cheapest of paperback thesauruses (thesauri?). Although you have to think up three or four words which have entries for every one which doesn't, I feel that's still an unacceptably high failure rate. And at £29.95 it's an expensive word finder compared with the perhaps slower but certainly more comprehensive traditional book method.

Still, Swift has rapidly established a reputation as a company which upgrades its software (a much improved version of *Pandora* is already out, only a matter of weeks after reviews appeared), so perhaps an expanded version may be on the way.

Swift Software is on 061 477 8405.

Letters pray

The other utility is an add-on to Brunning Software's *Infoscript*, the £50 integrated word processor, database, spelling checker and bicycle pump *(shome mishtake shurely? – ed.)*. It's a brilliantly simple and simply brilliant collection of form letters entitled *100 Letters*, which is a bit of swiz since there aren't 100 at all – but then, you can add hundreds of your own quite easily, as well as editing, amending and generally "personalising" the existing collection.

Furthermore the manual is an excellent introduction to the world of *Infoscript*. Recommended.

100 Letters is available from Brunning Software on 0245 252854.

No deal

"Like many other CPC users," writes Lindsay Chapman of Pentre in Mid-Glamorgan, "I've been thwarted in my attempts to obtain a copy of the Firmware Manual by Amstrad's extraordinary decision to allow the thing to go out of print.

"A thought: Amstrad obviously does not wish to make any money out of selling the manual (otherwise they wouldn't have let it go out of print); therefore it would no doubt be willing to give the publishers of *New Computer Express* and *Amstrad Action* the rights to reproduce it; and therefore your company could make pots of money out of selling it to Firmware call starved readers.

"What about it, Steve?"

Nice idea, Lindsay. I only wish Amstrad thought as clearly as you do. I wrote to Mr Sugar some months ago, offering to do exactly as you suggest. A reply from David Hyams, the Amstrad corporate lawyer, soon poured cold water on that one: "We have no wish to licence any third party to produce the CPC6128 manual," he wrote, adding, "but we appreciate your offer." If Amstrad have no interest in supplying demand, why is it unwilling to give someone else the opportunity to do so?

Meanwhile, Lindsay's letter ends on a rather plaintive note: "If, in the meantime, there is anyone in this galaxy who has a spare SOFT 968 that I can purchase, hire or borrow, please, please please (etc.) get in touch."

Lindsay lives at 37 Avondale Rd, Gelli, Pentre, Mid-Glamorgan, CF41 7TW.

Disco magic

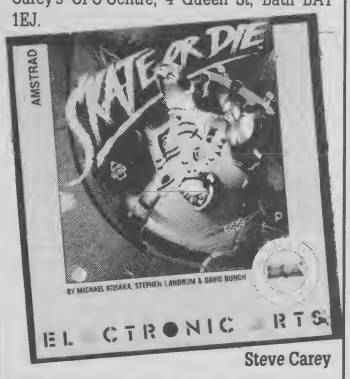
Someone recently told me the extraordinary tale of a nightclub in Manchester that uses CPC6128s to control the disco lighting. Unfortunately they didn't give me any more information. Does anyone know which club this could be, or indeed of any other similarly unlikely uses for the sturdy old workhorse? Write to: Sturdy Old Workhorse, Steve Carey's CPC Centre, 4 Queen St, Bath BA1 1EJ.

Thundercats are go!

Do you happen to have any pokes for the Elite game Thundercats *lying about, Steve?" asks Peter Hopkins. It so happens I do, Pete, though on tape only, I'm afraid. It's by Gary Barrett, and this is how you enter it. Rewind the game tape to the beginning and type in the poke listing. Then type RUN and press the [Enter] key. (Don't use the key marked CTRL or Control; that stops the poke from working.) Press the Play key on the cassette deck, then any key on the main keyboard – spacebar does nicely. The tape should now start to play through in the normal way.*

```
1 ' Thundercats - tape
2 ' by Gary Barrett
3 ' NCE issue 44
10 OPENOUT"t
20 MEMORY &7CF
30 CLOSEOUT
40 LOAD"tcats"
50 POKE &8E3,0
60 POKE &8E4,&BE
70 FOR n=0 TO 13:READ a$
80 POKE &BE00+n,VAL("&"+a$)
90 NEXT
100 CALL &7D0
110 DATA e5,21,00,00,22,33,78
120 DATA 22,34,78,e1,c3,d6,69
```

Written any good pokes lately? Send your infinite kneepads cheat for Skate or Die to: Steve Carey's CPC Centre, NCE, 4 Queen St, Bath BA1 1EJ.



Steve Carey

• Infinite kneepads for *Skate or Die*?!

SPEX

Turning text

Mark Bailey, possibly the only Spectrum programming genius resident in Stoke-on-Trent has just sent me his latest coding exploit. This one rotates characters through 90 degrees and turns them into italics. There must be absolutely hundreds of uses for such a program, although I can't think of one at the moment. Still, it looks impressive.

Once you've typed that lot in, made the necessary repairs to your keyboard/fingers etc, Mark gives the following instructions:

POKE 65194,0 - for normal character set in ROM

POKE 65194,1-3 - rotations of the characters by 90 degrees

POKE 65194,4 - italics

You can get a demo of what you've just bashed out by typing RUN 90.

RANDOMISE USR 65096 runs the machine code only.

Save the whole thing with RUN 120 or save just the machine code by entering RUN 130.

In keeping with the new spirit of generosity the column's undergone recently Mark's contributions will be rewarded with one free piece of Speccy software.

Stacks of hacks

When he's not writing and editing the excellent Enigma fanzine (issue 3 out now), Jon Rose regularly showers me with hacks and tips. Here's his latest selection which you'll need to have a Multiface or similar widget tucked in the back of your Spectrum to enter.

Forgotten Worlds	128 37604,62	Invincibility (both players)
Navy Moves Part 1	49923,0	Infinite Lives
Navy Moves Part 2	54035,0	Infinite Lives
Navy Moves Part 2 Code is 63723		
Red Heat	33372,X	X = Number of lives
Indiana Jones	40588,X	X = Number of whips
	42593,X	X = Number of lives

My eternal thanks go once again to Jon but as they don't fit in an envelope and aren't much use anyway he'll also be getting some free Speccy software.

Premium Bond

Finally got my hands on the Spectrum version of *License to Kill* this week and having experienced the full horror of the two previous Bond games at an impressionable age my hopes weren't exactly high for a decent game of the film. Unlike it's predecessors though, which should have been encased in concrete and buried in the Sahara for the public's safety, the latest Bond outing is pretty good. Just like the film, it's totally unoriginal but packed with excitement as you control 007 through many (i.e. I haven't got very far yet) levels of vertically scrolling shoot-'em-up trying to catch arch baddie Sanchez. Fast and furious stuff, it's well worth procuring and certainly bodes well for Domark's forthcoming bevy of arcade conversions. (*A.P.B. Toobin, Dragon Spirit* and the real jaw dropper - *Hard Driving*)

Sounding out

I've received a few more pieces of info on the +3 distorted sound fault for you to cut out, keep and file under Very Annoying. Daniel Garner, head of The +3 Users' Group and lots of other Speccy ventures plugged in this column very generously offered the following:

"It seems as if a fault on the +3's board has meant that it just can't cope with what the AY-3-8912 sound chip ask of it, especially if three channel sound is played. The way the +3's hardware mixes and outputs the sound from the AY chip is slightly wrong and as a result the overall sound output often seems saturated and sound modulation occurs which causes the distortion and fuzziness. Even though according to Amstrad, there is no fault with the +3's sound, they still managed to try and fix the non-existent fault, and as a result, version 4.1 +3s contain a botch on the sound chip hardware which, not unlike the old Sinclair botches, doesn't completely fix the problem but makes it a bit more acceptable"

Michael Hutcherson of Luton reckons you can reduce distortion by adding a lowish value resistor to the Save lead. Not having the courage, skill or time to try this I'm still suffering.

Thanks to both correspondents. If you've got any ideas send them in my general direction without delay.

I'd be really, well fairly interested to hear from anybody who's got suggestions and ideas concerning the column and what they'd like to see in it. Put a stamp on your opinions and send them to Robin Alway, Spex, New Computer Express, 4 Queen Street, Bath. BA1 1EJ.

Robin Alway

```
10 CLEAR 64327:FOR A=65096 TO 65199:READ M=POKE A,M:NEXT A:STOP
20 DATA 58,170,254,167,33,0,60,34,54,92,200,33,0,61,17
30 DATA 72,251,1,0,3,237,176,254,4,33,72,250,34,54,92
40 DATA 33,72,251,6,96,40,40,245,197,62,8,6,8,203,300
50 DATA 203,26,35,16,249,213,51,14,8,167,237,66,61,32,237
60 DATA 6,4,209,115,35,114,35,16,249,193,16,222,241,61,32
70 DATA 210,201,197,6,3,203,30,35,16,251,35,35,6,3,203
80 DATA 22,35,16,251,193,16,236,201,0,127,77,66,56,57
90 FOR I=4 TO 0 STEP -1
100 POKE 65194, I: RANDOMISE USR 65096
110 PRINT "SPEX":NEXT I:STOP
120 SAVE "CRAZY CHRS":STOP
130 SAVE "CRAZY CHRS" CODE 65096, 104
```

• The program to rotate text

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STREET TALK

BY MIKE DUNN

AT LAST, someone's had the good sense to do something about the awful sound on the PC. Brown-Wagh's The Game Blaster ought to make a big change to PC gameplaying; undoubtedly one for the better. This add-on, expensive though it is, is the sort of thing someone should have thought of years ago; admittedly £119 is a whopping price to pay to hear the alien mothership explode more realistically, but someone buying it for more "serious" purposes (I can't think of any off hand, but I'm sure lots of people could!) will certainly find it adding the clichéd extra dimension to PC games. The only question remaining is whether or not The Games Blaster will get the amount of software support required to make a name for itself. All the signs point towards it succeeding; several major publishers have already committed themselves to writing software compatible with it.

INTERESTING NOISES are coming from the direction of Audiogenic concerning their proposed football management game *Super League Manager*. Apparently it will be able to be used simultaneously with their previous release, *Emlyn Hughes' Soccer Manager*. I've no idea what the stand alone game will come out like, but the two games combined should be interesting. Expect a release sometime between now and Christmas.

TALKING OF WHICH, have you noticed how things in the software field tend to dry up just before the PC Show at the end of September? After the usual glut of games in the summer, things get even worse in September as software houses start saving everything up for the show. It all looks good on the stand at the PC Show, I'm sure, but what about the player that has had to wait for months and months to see the precious game?

Spare a thought, software people; keep the games flowing all the year-round!

TAME GA

● ***OUTRUN*** on the **AMIGA**; start the game and type in "RED BARCHETTA" (including the space) to enter the cheat mode. Then type "T" to get an extra ten seconds, "B" for an extended play bonus or "S" to get onto the next stage.
Paul Moore, Conisbrough, South Yorkshire

● ***SWORD OF SODAN*** , **AMIGA**; type "RAD" on the high score table to get infinite lives.

● ***RENEGADE III*** on the **SPECTRUM**; press "Q" and "T" together on the menu screen; this ought to make the screen go striped! Reselect the controls, and after starting the game, press "Q" and "T" together again to go onto the next level.
Ben Cowdall, South Cerney, Cirencester

● A few (a few??-wow!) **SPECTRUM** pokes...
POKE 58536,0 for infinite lives on ***RIK DANGEROUS***

POKE 33644,0
POKE 33648,0
POKE 33649,0
POKE 33650,0 for infinite lives on ***RED HEAT***

POKE 37561,0
POKE 37562,0
POKE 37563,0 for infinite energy on ***FORGOTTEN WORLDS***
POKE 30226,0 to get rid of all the nasties in ***FORGOTTEN WORLDS***

POKE 41911,0 for indestructibility on ***NEW ZEALAND STORY***
POKE 51515,0 for infinite lives on ***NEW ZEALAND STORY***

POKE 43073,0
POKE 43733,0 for infinite lives on ***INDIANA JONES THE LAST CRUSADE***

POKE 38052,0 for infinite lives on ***SILKWORM***
POKE 38505,0
POKE 38561,0 for indestructibility on ***SILKWORM***

POKE 55816,0 for infinite lives on ***LICENCE TO KILL***

Also, for ***THUNDERBIRDS;*** the code for part 2 is RECOVERY, the code for part 3 is ALOYSIUS and the code for part 4 is ANDERSON.
Arty Artingstall, Grimsby, South Humberside

● When playing ***SILKWORM,*** to increase your weapons capability, shoot the large bird like 'copter, which appears when the counter at the bottom of the screen reaches zero; the counter goes down when you hit an enemy. One way of making the counter go down faster is to position your helicopter so as it fires just on the front of the jeep; make the jeep jump up and down, and small explosions will appear on it. The counter will go down with each shot.
Robert Annett, Harpenden, Herts.

● On the **CPC**, in ***ARKANOID 2,*** hold down "shift", "T", "A", "I", and "O". When you start playing, press "ESC" and the exits will appear.
On ***SHORT CIRCUIT,*** hold down "O", "C", "E", "A","N" and your robot goes onto level 2.
Ian Evans, Wimbourne, Dorset.

● ***RIK DANGEROUS;*** use dynamite wherever possible, because it saves bullets and might kill more enemies; use the stick to hold off several enemies at time, then drop some dynamite and run! This is good for the points, as a dynamite kill scores twice as many as a bullet. Try not to use the dynamite or bullets near extra ammo, otherwise you'll blow it up! Whenever you see a stone sculpture, snake head, or anything like that, DUCK!; it'll probably fire darts!

● ***NAVY MOVES;*** the code for the second level is 786169
S J Martin, London N4

For all those lucky **AMIGA** owners out there...

● To use the cheat mode on ***HYBRIS,*** type "COMMANDER" and press the fire button. From here, F10 makes the ship invincible, F9 takes you to the next level, and F2-F6 gives you all the different attachments. To turn cheat mode off again, press F10.

HIT LIST
TOP 5 GAMES

1. NEW ZEALAND STORY
Ocean • Spectrum, C64, CPC, ST, Amiga
An excellent arcade conversion; cute beyond belief. It won Game of the Week twice!

2. APB
Domark • Spectrum,C64, CPC, ST, Amiga
Straight from the coin-op, this game is as playable as its arcade parent and is a must for all fans....

3. CARRIER COMMAND
Rainbird • Spectrum, CPC (disk only), ST, Amiga
One of the best examples of how good a strategy game can be, with a good element of arcade skill needed as well.

4. STARGLIDER II
Rainbird • Spectrum, ST, Amiga
Another great game from Rainbird; challenging space strategy and a fast moving blast all in one.

5.SPOOKED
Players • Spectrum
An amusing ghosts and ghost-busters game, likely to appeal to the young player; on budget as well!

DO YOU OWN THESE GAMES?

- **APB**
- **BEACH VOLLEY**
- **XENON II**
- **QUEST FOR THE TIME BIRD**
- **XYBOTS**

We've declared war on five of the hottest releases. We want to tame them and we need your help.

Have you found a hidden cheat mode? How about a poke, or the odd tip to get you through a difficult stage? Or a bug?

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Everybody who gets a tip, cheat, poke or bug published wins a prize! So what are you waiting for?

P.S. We're also interested in high score claims on these titles – and we'll print the highest, *provided* you also give us THREE TIPS on how you achieved the score! Write to the address above.

GAME

● On ***FALCON,*** if you get hit, don't bail out; instead, turn back and head for home. Press "HELP" and the "+" key together, and leave them pressed. The F-16 should level stay level and drop down. Switch to tracking mode and rotate to side view. Just before touch down, pitch up the nose and the 'plane will come down successfully each time. Select "end mission" and you will rescued, even if you are in enemy territory. In addition, try pressing "CRTL" and "X" together to get 500 cannon rounds and nine Sidewinders; you can do this as often as you like.

● ***ROADBLASTERS***; While playing the game, type "LAVILLASTRANGIATO" (!)) and then press 1-4 for different weapons, "S" for the next stage, and "F" for more fuel.

● ***CHUCKIE EGG II;*** type "ENABLE–F2" (don't forget the two minus signs before the F2!). While holding down F2, move into any adjacent rooms by pushing the joystick in the direction of the room.

● ***VIGILANTE;*** On the high score table, type "GREEN CRYSTAL" (again, don't forget the space). The words should be replaced by "...CHEATMODE..-". Then, in the game, press F1 to add a life, and F8 to go to the next level.
Julian Smith, Sheffield

● ***DOUBLE DRAGON;*** on the last level, when you get to the two giants that break through the walls, go back as far as you can when they come out, and they'll kill themselves.
Andrew Bell, Southminster, Essex

● For **PC** owners with ***ARCHIPELAGOS;*** solve Archipelago One, press return to select an Archipelago, and type 8421, and press RETURN. Press RETURN again, and you can select any Archipelago from 1 to 9999. For **ST** and **AMIGA** owners; solve Archipelagoes One and Two, and do the same as the PC version. Every fifth Archipelago in the first one hundred are the best, as these are pre-designed by the programmers. There are many complex and tricky ones to be seen; try number 5942!
Someone at Logotron...

APB

The highly-rated police game is finally converted onto the home micros; has it worked?

From Domark • Spectrum version reviewed

GAMEPLAY • The scenario of *APB* is simple; clear the streets of bad guys and make the town safe for decent citizens to get on with their daily lives! You take the part of the over-hassled cop, Officer Bob, equipped only with his police car to take on the might of the underworld...

This is, of course, a conversion from the highly popular and successful Tengen arcade game. Naturally, the car can be supercharged with guns, extra speed, brakes, acceleration and all the other things you'd expect.

On every third level, an APB is issued; when this happens it means there's an extra tough criminal on the loose, who must be captured, and then returned to the station for "questioning". Beat up the suspect by waggling the joystick, but make sure you've finished by the time the chief comes in.

Messing anything up, from failing to bring in an offender to wrecking the car, clocks you another demerit point. Too many of these, and it's bye bye to the Police Force.

GRAPHICS AND SOUND • Even with the obvious limitations on colour, the graphics on the Spectrum version of *APB* are excellent. The scrolling is smooth and the sprites are all clear; the only problem is the monochrome, but there's really no way around that. Sound is equally impressive; the music is as good as you're likely to hear on a Spectrum, it's catchy and really adds another element of playability to a game which doesn't really need it!

OTHER VERSIONS • We've seen the 64 version of this, and frankly, it's not as impressive; still a worthwhile buy, but it's not quite as much of an achievement as the Spectrum version.

VERDICT ★★★★★
Brilliant! It's not all that often that Spectrum owners are treated to a conversion as accurate and enjoyable as this one (OK, so *New Zealand Story* was great as well) Got a Spectrum? Go out and buy it now!

VERSION	PRICE/FORMAT	DUE OUT
Spec	£9.99cs, £14.99dk	Now
C64	£9.99cs, £12.99dk	Now
CPC	£9.99cs, £14.99dk	Now
ST	£19.99dk	Now
Amiga	£19.99dk	Now
PC	No version planned	

NAME BEHIND THE GAME

Walking Circles, the company behind the programming of *APB*, is also responsible for another of Domark's recent releases -*The Living Daylights*, the film of the Bond movie (as if anyone didn't know!). Other than that, its name isn't one which would exactly make the corridors of software history shake. Unlike, say, Design Design, and, yes, Walking Circles and Design Design (and an even older company called Crystal Computing) are one and the same. Way, way back in the proverbial mists of time, there was a Spectrum game called *Halls of the Things*, a sort of mazes and monsters game, with really awful graphics, but the most terrific playability. It was a game which would hardly merit a second glance from many people these days, but back then, six or so years ago, it was something really special.

Crystal are one of the few companies who can really take the credit (or the blame, depending on how you look at it) for making the Spectrum "happen".Then, in the mid-eighties, Crystal relaunched themselves as Design Design. They wrote such classics (you can tell I like these guys, can't you!) as *Dark Star*, *Forbidden Planet*, and *2112 A.D.*. One more relaunch later, it became Walking Circles (well, most of it did; I know one of the old Design Design team has sold out to respectability and become an Apple dealer in Shrewsbury!),and here we have *APB*. It's been working on it since January; it wasn't easy, but at last it materialised, and a very pleasing game it is.

Things like the sprites and the train caused particular problems for the programmers, but obviously things turned out OK in the end. The cheat mode however, is a no-go, at least on the Commodore; actually fitting the game into the memory space available was no mean feat, and a cheat mode might be a bit much to ask in the two bytes that they had left at the end!

FIRST PEEK ....

3D POOL

• Firebird's three dimensional pool simulation, ingeniously entitles *3D Pool* is now out on the Amiga. With its excellent graphics and sound you'd expect to find that the simulation is approaching the perfect, but regrettably *3D Pool* feels like there's something missing. When it comes down to it, what's the point of playing simulated pool in your living room when you can play the real thing down the road to the pub?

Play back

Your views on the latest software – call 0225 444439

"...We want to know why all of Ocean's games and programmers are so completely over-rated. The only decent Ocean programmer is a dead one..."
ANONYMOUS
(This was the only printable bit of the message, get the idea?)

"I waited four months for *Robocop*, and it wasn't worth it. It's abysmal, and I'm saving my money for *Xenon 2*."
DARREN SMITH, Doncaster, South Yorkshire

"I don't suppose anyone's got any tips for *Battle Of The Toothpaste Tubes* by K-Tel on the 48K Spectrum?"
"To make *Robocop* a bit harder for all the Amiga owners who must have completed it by now, get a bit of cloth and tie it round your eyes."

"I enjoy *Wonderboy*, but found that when you get to the Sphinx, the question he asks you is always random, so I can't get any further."
PAUL, London

"What's wrong with games cracking anyway?"
THE DARK STALKER, Scotland

"I'd just like to complain about the lack of Aquarius reviews and columns; also, a game tip. Don't play *Starglider* unless you have trouble sleeping."
STEVEN HILDER, Epping, Essex

"Yo! Software houses! Take note of the sales of Incognito's *Kenny Dalglish*; it sold by the barrel-load. How about some more full price games for the eight-bit Atari?"
ROB BERRY, Nottingham

"*Manic Miner* on the 48K Spectrum is the best game ever"
THE DARK ALIEN, Malvern Island

ONE-LINERS ● ONE-LINERS

● Hot news on the U.S. Gold front; *Indiana Jones; The Graphic Adventure* should be on release at the end of September, on the ST, Amiga, and PC, at £24.99 on the first two and £29.99 on the PC.
● Loricel's self-explanatory (I hope!) *Pinball Simulator* and *Tank Simulator* are both expected sometime in October.
● Fans of the classic Epyx *Games* series will be glad to see the launch of *The Games; Summer Edition* on the ST and Amiga, at the end of September. ST owners don't even have to wait that long; *California Games* should be out on their machines by the middle of September. Also from Epyx is *Pools of Radiance*; this will be out on ST and Amiga towards the end of October.
● Lucasfilm is promising an adventure called *Maniac Mansion* for the end of October. Apparently featuring everything from love and lust to world domination, it might be one to watch; look out for it on C64, ST, Amiga and PCs.
● PC owners who have seen the Spectrum version of Microprose's *Soccer* have their very own version to look forward to, on September 8th, at £24.95.
● Help save the world (though a little more seriously than usual!) with *Rainbow Warrior*, named after the famous Greenpeace ship, out on (wait for it...) Spectrum, CPC, C64, ST and Amiga in early September.
● Again due for the first week in September, is *Mr Heli* on (here we go again) Spectrum, CPC, C64, ST and Amiga.
● Good news and bad news for CPC owners; the first is that *Carrier Command* should be out very soon on disk for £14.99. The bad news is that there's not going to be a cassette version; apparently, there's too much data to fit on the tape.

MINI REVIEWS...

CALIFORNIA GAMES ★★★★★

SEGA • £24.95

This game is really good! A conversion of the older eight-bit micro versions, Sega have really scored with this. A total of six events face the players (up to eight), and though some of them are considerably better than others, none of them are really poor. You can take your intrepid sporting hero from the half pipeon on a skateboard to the foaming waves on a surfboard, and it's all one big bundle of fun! The graphics are great, with loads of colour, and though the sound isn't quite album quality, there's enough of it to keep the game going along! All Sega owners should consider buying this; it's one of the most playable sports simulations I've seen, and if you liked it on any of the other versions, you're bound to enjoy it on this.

SPOOKED ★★★★

PLAYERS PREMIER • SPECTRUM • £2.99

Wow! A good Spectrum budget game; it's not often that we see one of those! *Spooked* is visually very good; it has clear, well-defined characters, and the use of colour is liberal without making the screen too bright. The storyline owes more than a little bit to *Ghostbusters*, but who cares? A useful innovation is the "scardyness" factor ; it makes the game easier the worse you play (comes in very handy!). Very obviously aimed at the younger player rather than your shoot-'em-up addict, *Spooked* is the sort of game that would go down very well with a little brother, or at least, it's not the sort of game you admit to playing (still worth buying though)!

GEMINI WING ★★

SPECTRUM • U.S. GOLD

Shoot-'em-ups are getting very limited on the Spectrum; there isn't all that much you can with them, and there have so many before! *Gemini Wing* is, to be honest, just another one; nothing makes it stand out, and bearing in mind the small graphics and dodgy colour scheme (i.e. monochrome!), it turns out to be one of the poorer ones. I don't think anyone who already owns any sort of blasting game will find this worthwhile; unoriginality and bad graphics are its only two problems, but I'm afraid I see both of them as very big ones. It couldn't have been much better; I'm afraid I couldn't visualise *Gemini Wing* making a successful conversion onto the Spectrum.

PCW PATCH

Sheet faced

Amstrad's sheet feeder is now out for the 9512. Mail order company RSC of Watford used to do one so Amstrad's effort is not the first, but it seems a very good piece of kit.

For £99 plus VAT you get a device that clips on to the 9512 printer and feeds single sheets of A4 repeatedly for mail merge runs. This means you can avoid using continuous paper for those mailouts and put them on your letterheaded paper instead. You get two new systems disks with it, *LocoScript* 2.29 and CP/M 2.29 which both have sheet feeder options in printer setup.

It works fine from *LocoScript* but not from CP/M, so *Protext* and *Mini Office* users may as well forget it. A5 paper won't fit but anything around A4 will, and most acoustic hoods won't take the unit; maybe they ought to supply a pair of ear plugs with the sheet feeder too.

Details from Amstrad on 0277 228888.

For Filofax sake

You can use standard continuous paper as Filofax inserts. Just keep your page lengths less than 39 lines and your margins at about 8 and 56 (17 pitch). When you print out, the Filofax rings will fit into the holes at the side of the continuous paper (you cut out the paper around the middle ring in each group).

Killer Bs

One thing I find increasingly annoying about the PCW 8512 is the way it keeps thinking the B drive isn't there. If, on booting up, you put the B disk in just between the last bar appearing and the opening titles in *LocoScript* or CP/M, the B drive is completely ignored. The solution is, of course, a simple restart with both disks in the drive – but why on earth should it happen in the first place?

Slipped disks

Sod's Law states that the disk that gets corrupted is always the one you didn't back up that happens to have all your customer records on, your life's work thesis, your collected names and addresses, and the secret recipe for Coca Cola.

Dave Smith, who for years has been recovering lost data off corrupted disks for charity, is now setting up a disk data recovery service. Profits will go to Cancer Charity BACUP (the reasons should be obvious).

The problem is that Dave neds an assistant who can be trained to do disk salvage work (maybe even get a small wage) who lives in the Kent area.

Prospective assistants, or anyone who needs data rescued off a disk, should call Dave on 089 283 5974.

Pigg Book of Records

Most compact program

Perhaps the shortest and most compact PCW program that has ever been sold is LocoMail. For thirty quid you get just 7K of program code, but it has so many functions that it takes a whole manual to explain them.

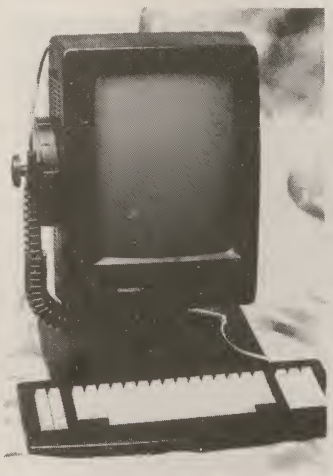
Re joyce, Locolocked spellchecquered!

This looks to be a nice example of the way *LocoSpell*, the spell checker for *LocoScript*, mangles the sense of something if you let it replace every doubtful word with its own suggestions. It's the last few words of *Finnegans Wake* by James Joyce (that's right – no apostrophe):

...End here. Us then. Finn, again! Take. bucktooth, meteorite! Till thousandth. Lps. The keys to. Given! A way a lone a last a loved a long the

Yes, it ends there. And obviously *LocoSpell* has mangled the sense out of it, hasn't it? Er, well, now compare it with the original:

...End here. Us then. Finn, again! Take. bussoftlhee, mememormee! Till thousendsthee. Lps. The keys to. Given! A way a lone a last a loved a long the



Well put me sideways

And you thought there were only three breeds of PCW. This one is called the 'Black Stripe' and is the latest customisation from Dave Rathbone of Isenstein.

The body is painted black and the monitor turned through ninety degrees. No, you don't have to buy a special chair similarly configured; special software flips the characters round, slightly stretching them, so you get the full 90 columns on the screen , which is now 'portrait' – taller than it is wide – like a sheet of paper.

The final version will have 24 pin printer and hard disk, but don't send off your cheques yet; it's strictly a hand-made custom-built machine. Phone Isenstein on 0244 312986 for availability and be prepared for a long wait!

Basil Pigg

ATARI 8-BIT

ANTICS Roadshow

Atari apology

Many apologies to the thousands of disappointed Atari eight-bit owners who have eagerly picked up the mag in Smith's to read their column. The bank holiday last week intervened. But fear not, your column will return rejuvenated in a fortnight.

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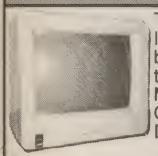

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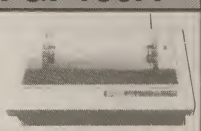

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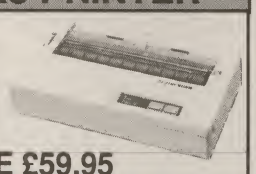

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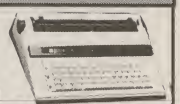

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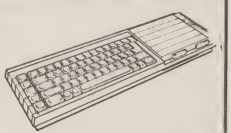

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QL corner

Buying a printer

If you are thinking of getting a printer for your QL, I might be able to save you some money!

One of the shortcomings of the QL is the lack of a Centronic or parallel printer port. Printers with parallel interfaces are somewhat cheaper than serial printers. Moreover, they also tend to be much easier to get working, as the Centronics interface is more of a universal standard than that using the RS-232 system.

One of Miracle Systems' Centronics adaptors is the answer. This little unit has two leads, one is plugged into the QL SER1 or SER2 port, and the other plugs into the printer. Using a parallel printer with your QL means that if you subsequently downgrade to a PC, Amiga or ST, you can still use your parallel printer on the new machine, leaving the serial port free for a modem.

Stewart Honeyball of Miracle tells me he has sold something like 15,000 of these adaptors, which probably makes it the best-selling QL add-on. A similar adaptor is also available for the Psion Organiser.

The adaptor costs £29. Miracle is on (0904) 423986.

String functions

String functions in SuperBASIC, that is, functions that return a string, MUST have the function name terminated by a '$'. This isn't mentioned in the documentation, and caused me a great deal of head-scratching when I first started using the QL.

Italian QL meeting

A QL meeting has been organised by a group of Italian QL users, on Saturday 23 October. The venue is the Villa Alba, by the Garda lake, in Brescia. According to organiser Eros Forenzi, there are around 20,000 QL users in Italy, so they should get a good turn-out. Foreign visitors will be very welcome, and Eros suggests taking the family, and combining the meeting with a short holiday.

Further details from Eros Forenzi, Via Valeriana 44, 23010 Berbenno (SO), Italy Tel: (0342) 492323.

John Torofex

More bugs

• With JS ROM machines, typing PRINT VERS (to see if your machine has got a JS ROM!) can cause a crash if file access is performed when the system is very short of memory.

*• Very large COS parameters can give silly results between 16384*PI radians and 65535*PI radians.*

According to Dilwyn Jones's bug list, the QL has a total of 69 bugs. This might seem a lot, but I've just read in Computing that more than 300 bugs have been found in an office automation package!

BEEB BOX

Robot writing

PSST! don't tell anyone, but I reckon I've cracked it; how Acorn have managed to stay in business all these years that is. Yes, those weird projects whispered about in dark corners of Cambridge wine bars did bear fruit. Artificial intelligence unbounded, or how they came to replace all the staff with computers. Mind you, they must have skimped a bit on the one they use for writing press releases with judging by the turgid prose it employs. Don't think I'm knocking Acorn, all press releases are alike. The important thing is to keep them coming.

• Dixons: stocking A3000s

Latest news from Acorn is good, with Dixons being signed up to sell the new A3000 machine. The last time that happened was in the dying days of the Electron. Acorn are financially stronger now, so we shouldn't see a repeat of the desperate price cutting of those times. Before you cheer too loudly however, only the 20 or so "business centres" as Dixons call them will actually sell the machine. So, unless you live in a big city you're still unlikely to see much of the beast. Public visibility, or more bluntly, free advertising is the advantage of being in Dixons. These days it's like a royal seal of approval. Now if only they could sign up Boots, W H Smith, Sainsbury's, Tesco...

Showing off

Just a reminder that it's show time again and Acorn will be at the Personal Computer Show. This year however, they have pushed the boat out and started their own "village" with the likes of BEEBUG and Minerva. I can't wait. Also, the Computer Shopper Show which will be held at Alexandra Palace from November 24th to 26th. See you all there!

Andrew Brown

Good news

Writing a column such as this one can be an up and down affair. Some weeks you feel as though you're hammering at a locked door, others you feel elated as if you'd backed a 200-1 outsider and it romped home. This week I received news of another Shareware outfit called ABS, or Auntie Beeb Shareware Club. ABS is run by Peter Cumberland from 21 Dirdene Gardens, Epsom, Surrey, KT17 4AZ. The newsletter, and catalogue they sent me looked professionally produced (on a Beeb of course) and was well written to boot. Peter tells me that the membership level stands at around 200 from small ads in the computer press. He also promised to send me some of their latest material including a BASIC compiler program which costs only £4.00. Most of their library costs £3.00 of which £2.00 goes to the programmer. Strictly speaking this is not shareware, as the royalty gets deducted at source, but who cares?

MSX TRA

Sound of thunder

I bet all you MSXers would just love to buy a copy of US Gold's latest conversion to MSX format, *Thunderblade*. Well to tell you the truth, so would I, but unfortunately US Gold has decided not to launch this game in the UK. If you wish to get hold of a copy you're going to have to nip over to Spain, as this is the market that *Thunderblade* has been converted for.

I personally would have thought that US Gold would have done well releasing a game like *Thunderblade* in the UK, especially as it's been well received in the other formats. As it is they put out games like *Outrun*, *Psycho Pigs*, and *World Games*, all of which were given the thumbs down on other formats but were thought good enough for the MSX user.

Gangsters rule

At least *Chicago 30s*, one of US Gold's recent MSX titles, is areasonalble game, this coming over from Spanish software house TopoSoft. This is another title which is similar in presentation to the Spectrum version, ie lots of colour clash, which could easily have been avoided if the programmers had used the excellent sprites of the MSX computer. *Chicago 30s* is just the type of game for using sprites.as you are controlling a moving charachter against a colourful background, in a similar manner to Konami's *Kings Valley II*. In *Chicago 30s* though the object of the game is to fight your way through streets filled with mobsters and hitmen, and baddies driving black Bugattis. eventually you will reach the ultimate goal, the illegal booze warehouse , for a final confrontation. Apart from the attribut problems with the colours, the game is well programmed and the has good sound effects. the only problem with this game is its degree of difficulty with lives being lost too quickly for my liking. the enemy seem to come at you from all sides, and even though you are armed with a trusty machine gun and grenades, reaching the end of the first level takes a lot of skill and even more luck.

This fact will probably make *Chicago 30s* more appealling to the hardened games players among you, but I must admit this game is one of US Gold's better releases. My score, seven out of 10.

Keith Neal

Tip time

Last week I recieved some games tips from someone who calls himself the MSX Shadow Weaver. These were regarding the games Army Moves and Knight Tyme. One of our reders was having trouble loading Army Moves into his Toshiba HX/10, and the Shadow Weaver says, try RUN"CAS:"[Return] or RUN"CAS: [Return]. the game should then load. He also sent through enough tips for Knight Tyme to fill this column for the next three weeks. Still, I have picked out a few of the most important.

The transporter co-ordinates are:

Starbase 1	*X1,Y2,Z3*
Hoopers Asteroid	*X1,Y8,Z4*
Murphy's Moon	*X8,Y4,Z1*
Tyme Guardian	*X8,Y8,Z6*

You will find Hooper on the planet Monopole, Murphy on Retreat and the Tyme Guardians at Outpost.

Why not write in with the name of the game which is giving you trouble and we'll see what we can do.

SECTOR 64

Cheats

Thanks to Goody we have some scorching hot cheats for you

To use these cheats on a game you must first reset the computer with the reset switch.

▪ **Bubble Bobble**

Poke 7076,70 ;When you burst a bubble player one gets lives and points.
Poke 8975,70 ;By pressing the fire button you turn into the enemy. This goes for both players.

▪ **Munsters**

Poke 2048,216:Poke 2049,120:Poke 2050,32
Poke 15593,169 ;Infinite energy
Poke 15614,169 ;Infinite spells
Sys 2048 to restart game

▪ **Purple Heart**

Pke 64466,173 ;Infinite lives player 1
Poke 796,173 ;Infinite lives player 2
Poke 19803,189 ;Infinite arms
Sys 3072 to restart game

```
0 POKE53265,27:POKE53266,155
1 PRINTCHR$(147)
10 B=49152:FORL=0TO80:READA:POKEB+L,A:NEXTL
100 DATA 120,169,192,141,21
110 DATA 3,169,18,141,20
120 DATA 3,169,27,141,17
130 DATA 208,88,96,169,72
140 DATA 141,18,208,32,44
150 DATA 192,169,1,141,25
160 DATA 208,169,127,141,13
170 DATA 220,169,129,141,26
180 DATA 208,76,49,234,162
190 DATA 43,160,16,136,16
200 DATA 253,36,255,206,22
210 DATA 208,238,22,208,173
220 DATA 18,208,169,136,152
230 DATA 41,7,9,16,141
240 DATA 17,208,181,160,141
250 DATA 255,255,202,208,227
260 DATA 96,0,0,0,0
300 FORL=0TO8:POKE53249+D,80:
POKE53248+D,E:E=E+24:D=D+2:NEXTL
310 POKE53269,255:POKE53277,0:POKE53271,255
311 FORL=0TO7:POKE2040+L,10:POKE53287+L,1:NEXTL
320 SYS49152
```

• Program for border sprites

New Zealand help

Jeff Alan from Essex is looking for some cool cheats for *New Zealand Story* If anyone out there has some power cheats for this new smoothy game then plese sed them in to *New Computer Express*.

Why is it though that the 16-bit versions are getting all the hype? You'd think that this game didn't exist at all on the C64, but it's not only a great game on the ST and Amiga, it's pretty wicked on the Commodore so keep up the great work Ocean.

The New Zealand Story costs £9.99 on cassette or £14.99 on disk.

Sprites on the edge

After many letters asking how to put sprites into the side borders of the screen we have decided to print a routine in Sector 64. Just type it in and Run.

Ian and Mick

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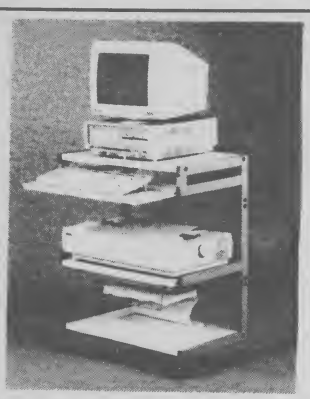

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Express Listings!

The listings page with a difference: they're all in plain English...

Ten Biblical quotes about computers

10 Male and female created he them
Genesis 1:27 as God creates comms – on Saturday as it's cheap rate
20 Thou hast showed thy people hard things: thou hast made us to drink the wine of astonishment
Psalms 60:3 on pornographic bulletin boards
30 Mightier than the noise of many waters
Psalms 93:4 on Amstrad PCW printers
40 The whole head is sick, the whole heart faint
Isaiah 1:5 on the effects of staring at a VDU eight hours a day
50 How can he get wisdom... whose talk is full of bullocks?
Ecclesiastes 38:25 admonishes the PR people of the computer world
60 It is a foolish thing to make a long prologue, and to be short in the story itself
Second book of Maccabees 2:32 has a go at freelance computer journos who write waffle to length
70 Freely have ye received, freely give
Matthew 10:8 on the people who make too much money out of PD
80 It is easier for a camel to pass through the eye of a needle...
...than it is to get a spare part out of Amstrad, says Matthew 19:24
90 Certain lewd fellows of the baser sort
Acts 17:5 introducing the staff of New Computer Express
100 Charity shall cover a multitude of sins
First Epistle of Peter 4:8 on Amstrad's Charity Tennis match last July that gave them valuable (and free) good publicity when their share price was tumbling

Ten abbreviations that have other meanings in real life

10 AI
Artificial Intelligence or Artificial Insemination. For many computer users, the parts of the body these replace are the same
20 ST
Atari's Sixteen Thirtytwo, or Sanitary Towels, as in 'dispose of STs in this bin please'
30 REM
Comment in a program listing, but also 'Rapid Eye Movement', the scientific term for dreaming – both begin and end with a lot of yawns
40 BBC
British Broadcasting Corporation for either the Acorn machine or the media company, as in 'BBC programs are boring'
50 PC
Personal Computer or Police Constable, as in 'one of our PCs is corrupt'
60 ROM
Read Only Memory or the abbreviation for Roman (i.e. non-italic) letters in typography
70 RAM
Random Access Memory or the Royal Academy of Music
80 XT
IBM's Xtended Technology PC, or abbreviation for 'Christ' (Greek Χριστος) both being the offspring of three letter deities
90 PD
Public Domain or, in physics, Potential Difference – in this case the potential difference is from 50p to £3 a disk
100 XE
No-one knows what the letters in Atari's eight-bit stand for, but in chemistry Xe stands for xenon, which is also totally inert

INDIANA JONES COMPETITION WINNERS!

The Indiana Jones Competition drew in another big postbag. Lucky winners of the Indiana Jones T-Shirts were: **Glen Campbell,** Herts; **Richard Ainsworth,** Southend; **Greg Inman,** Chepstow; **Annabelle Tarlton,** London; **Frank Toner,** Newtownards County Down, NI; **David Deans,** St Albans; **Adrian Searle,** Alresford, Hants; **David Sargeant,** London; **Philip Lim,** Weston Super Mare; **C Parker,** Bristol; **David Walton,** Bampton, Oxfordshire; **Simon Jennings,** St Albans, Herts; **Scott Parkin,** Stafford; **Richard Bristow,** Pontypridd; **Asher Imaroof,** London; **C Cotton,** Daventry; Northants; **Mrs J Archer,** Newcastle; **Adnam Alam,** Glasgow; **Shiham Marouf,** London; **J Temple,** Colchester, Essex.

Getting an Indiana Jones film poster are: **Dave Batty,** S Yorks; **N Frostick,** London; **B Mooney,** Washington, Tyne & Wear; **RS McCrae,** County Antrim, Northern Ireland; **Peter Topham,** Redcar, Cleveland; **Matthew O'Connor,** Bourne, Lincolnshire; **Philip Young,** Bakewell, Derbyshire; **Paul Gooden,** Plymouth; **Peter James,** Tonteg, Mid Glamorgan; **GR Miles,** Bedworth, Warwickshire.

And getting the booby prize, a copy of the Indiana Jones Game from US Gold (only joking – it's jolly good really) are **Paresh Pandya, South Harrow,** Middlesex; **Nial Grimes,** Llanelli, Dyfed; **Iain McKinnon,** Glasgow; **David Craggs,** Durham; **Edward Craft,** Wolverhampton; **Ian Bye,** Lincs; **Gregor Houghton,** Portsmouth; **Duncan Nagle,** Bristol; **M Collins,** Birkenhead; **Alex Harrison,** Birkenhead.

Congratulations – a copy of US Gold's No. 1 game will be with you soon for your machine.

NEXT WEEK ■ NEXT WEEK ■ NEXT WEEK

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